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Colorado Medicine

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Colorado Medicine

The Journal of the Colorado State
Medical Society

WILLIAM H. CRISP, Editor

Volume XII. January to December
1915

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A. J. Markley, M.D.
Melville Black, M.D.
L. B. Lockard, M.D.

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Editorial Comment

MANIFESTATIONS OF CONGENITAL SYPHILIS.

To speak of syphilis as "the most protean of diseases" is but to utter one of the truisms of medicine; to acknowledge a fact long ago established upon the basis of clinical observation alone. The application of this truth has, however, been greatly extended by the results of the Wassermann reaction in showing that many disorders of the nervous and vascular system, hitherto ascribed to a variety of causes, among which syphilis might be included, are definitely due to syphilis only.

More recently, too, there is a tendency to include in this category a number of conditions in which syphilis has not been supposed to be an etiologic factor; that is, epilepsy, mental deficiency, congenital heart disease and certain forms of skin disease.

Findlay and Robertson (Glasgow Medical Journal, December, 1914) relate the results of Wassermann tests in a large number of such conditions in which no indication of syphilis was to be found in the personal or family history or in the clinical findings, yet in which the serologic examinations gave a high percentage of positive results.

They describe a variety of eczema about the mouth, "Eczema oris syphiliticum," occurring chiefly in children, but also in adults, quite different from the fissures in this situation which are so familiar an accompaniment of congenital lues. All these cases gave a positive Wassermann and yielded to specific treatment.

Congenital heart disease, spastic diplegia, epilepsy and the various forms of idiocy are ascribed to syphilis when they occur in association with other manifest evidence of that disease in the patient or in his parents; but in a large percentage of these cases such evidence is lacking and some other source of the trouble is assumed. Findlay and Robertson, however, found in their series that 81 per cent of the cases of congenital heart disease, 45 per cent of the cases of spastic diplegia and 60 per cent of the mental defectives gave a positive Wassermann. Thus slowly but surely the long list of maladies of unknown or speculative origin is being reduced and an astonishingly large number of them are finding their proper place among the more or less direct results of syphilis.

There are many other conditions of which syphilis is supposed to be one of many causes. If, by means of carefully made and frequently repeated Wassermann tests, it can be shown that these patients are victims of congenital syphilis, such a result will go far toward proving that this disease is the principal if not the only cause of those particular disorders. A. J. M.

INFANTILE PARALYSIS.

A month or so ago there seemed to be some likelihood that Colorado was to be subjected to an epidemic of infantile paralysis. The disease is one which in its milder forms is often easy to overlook, and it is exactly these milder cases which are of special significance in the transmission of the infection. The matter was dealt with in a symposium which formed the program of the Medical Society of the City and County of Denver on December 15. For the same reasons as those which made the presentation of the subject to the Denver Society desirable, the Publication Committee of Colorado Medicine felt that the prompt publication of the papers included in the symposium would be of benefit to the physicians of Colorado, and through them of course to the whole community. Although an epidemic no longer seems imminent, the increasing incidence of the disease in the United States, together with its unfortunate results, demand that the symptomatology and diagnosis of infantile paralysis should be familiar to every medical practitioner. The spread of the disease apparently occurs most readily in the warmer weather, but it will not be long before spring is with us again, and no one can tell at what point or with what severity the contagion may again show itself.

Papers on "subsequent management" of acute anterior poliomyelitis, by Drs. Moleen and Fosdick Jones, will appear in the February issue.

A SANITARY OASIS.

The importance to the civilized world of the construction of the Panama Canal was so great that widespread attention was naturally focused upon the means by which the great engineering feat was finally made possible. The achievements of the United States army surgeons who carried out the sanitary reforms by which life in the canal area was rendered as safe and healthy as in many of the great cities of the temperate zone have become a matter of common knowledge. The area affected, however, is really a very small part of the earth's tropical regions, and it might well be asked whether the enormous wealth and resources of the United States Government had here produced effects which could not be hoped for as regards the wilds of Africa or the interior of Brazil.

An essay on "The Sanitation of Iquitos, Peru," by United States Acting Assistant Surgeon G. M. Converse (Public Health Reports, Vol. 29, No. 46) gives an interesting if not altogether attractive insight into the conditions which have to be controlled before the white man can conquer the tropics. Iquitos is a town of 12,754 inhabitants, situated less than 4 degrees south of the equator, 2,300 miles from the mouth of the Amazon River.

During a recorded period of nine and a half months its rainfall was ninety-three inches, and it has an average temperature the year round of 86° Fahrenheit. Instead of a sewer system it has about eighteen kilometers of open drains, running along the middle of the streets. The inhabitants obtain their drinking water by catching in barrels the rain which falls on the roofs of the houses. Iquitos is separated from the main stream of the Amazon by a long and narrow island, and is otherwise hemmed in by swamps and impenetrable jungle. Among the diseases shown on recorded death certificates are yellow fever, malaria, anemia, diarrhea and fevers. The death rate in 1912 was 49.52 per thousand inhabitants.

The steps taken for the control of yellow fever included (1) mosquito proofing of artificial containers of water; (2) making other collections of water (open sewers, etc.) unfit for the development of the larval stage of stegomyia and other mosquitos, by the addition of larvacide; (3) general cleaning up of houses, yards and gardens and the removal therefrom of all unscreenable containers of water. On account of lack of funds no change whatever was made in the sewerage system, the streets or the water supply, nor was fumigation attempted.

Although in previous years yellow fever had never failed to be present in epidemic form at some time of the year, not one case of the disease occurred in the eighteen months beginning February, 1913, and the general mortality rate dropped from 49.52 per thousand in 1912 to 28.88 per thousand in 1913. During the first six months of 1914 the death rate further fell to 21 per thousand. With an adequate expenditure of money Dr. Converse would no doubt have been able to duplicate in this small Peruvian community the brilliant achievement of General Gorgas in Havana, where in the space of five years the mortality rate was lowered from 75 to 12 per thousand.

Out of the 12,754 inhabitants of Iquitos, 9,500 to 10,000 are infected with, or harbor, Necator americanus (the hookworm), which is responsible for more than one-half the deaths as the mortality now stands. About 10,000 of the population walk barefooted all or part of the time. The majority cannot afford to buy shoes. Of 87 samples of the surface soil of the town, 49 showed the larvae of Necator. Of 128 persons whose stools were examined, 103 showed eggs of Necator.

It is interesting to note that the following infections have never been known to occur in the town of Iquitos: Typhoid, scarlatina, diphtheria, acute lobar pneumonia, rabies, plague and cholera.

The time when large numbers of white men and women will fearlessly live and work in the tropics is probably far distant. To enable them to do so enormous sums of money will have to be spent under the leadership of sanitary engineers. Even where tropical diseases have been banished from well-defined areas, as in the case of the Panama Canal zone, the safe movements of white inhabitants will tend to be confined within these areas, a condition of affairs widely differing from the unrestricted freedom of travel possessed by dwellers in the temperate zone. Yet it must not be forgotten that many of the most densely peopled regions of northern Europe were once covered by gloomy forests in which wild beasts threatened the safety of the unwary traveler. It may be that, several centuries from now, the dense jungles which beset the banks of that mighty Amazon will have given place to wide stretches of cultivated land upon which the increasing millions of mankind will live in health and prosperity.

The experiences related by Dr. Converse further illustrate the dominant fact in sanitation—that good health is a purchasable commodity. This excellent report will unquestionably stimulate other municipalities in the hot countries to emulate or outdo the results obtained in poverty-stricken Iquitos.

A CRIME AGAINST MOTHERHOOD.

In these days of gross commercialism there seems to be no aspect of human life which is free from exploitation by financial interests and unscrupulous advertisers. It might perhaps have been expected that some last shreds of fundamental decency would forbid the extension of the methods of yellow journalism to the function of child-bearing. We have traveled far, it is true, since the day when Simpson was denounced from the pulpit for proposing to employ choloroform to relieve child-birth of its acutest pains. But there is something peculiarly repugnant to every intelligent and decent-minded man and woman, inside and outside the medical profession, in the ignorant or malicious distortions of medical fact which have lately been put before the public by the editorial staffs of several of our popular magazines. It was bad enough that every mother or prospective mother in the land should have been informed in exaggerated terms of the advantages of the so-called twilight sleep, without adequate presentation of its difficulties and dangers. But the latest effort of this kind is not even based upon a modicum of truth or scientific research. The drug which Mr. Vance Thompson, novelist and playwright, describes in a recent number of the Cosmopolitan Magazine as being "without the slightest danger to the mother," "not interfering with the necessary muscular contractions," and making "painless child-birth a scientific certainty," is in plain English a proprietary preparation, offered by a French chemist under the names "Tocanalgine" and "Antalgine," and found on analysis to contain, in the dose recommended, about a half grain of morphine hydrochloride. The Journal of the American Medical Association rightly brands the Cosmopolitan article as "cruel, sensational and a disgrace even to yellow journalism."

The third convocation of the American College of Surgeons was held in Washington on November 16, 1914. The president, Dr. J. M. T. Finney, announced that subscriptions to the endowment fund of one million dollars, which the college has resolved to raise, now amounted to approximately $250,000. He predicted that the full sum would easily be secured before the annual meeting in 1915. It is estimated that this large sum will be needed to establish on a permanent basis the plans of the college for the betterment of surgical work in America.

Each future applicant for admission to the American College of Surgeons will probably be required, among other things, to show a very detailed abstract of the history of at least fifty consecutive major operations which he has himself performed, together with a further abstract report of at least fifty cases in which he has acted as assistant.

Original Articles

ANDREAS VESALIUS.*

CARROLL E. EDSON, A.M., M.D.

Mr. Chairman, and Members of the Medical Society of the City and County of Denver:

In surrendering the office which you have entrusted to me for the past year, I wish first to express again my high appreciation of the honor bestowed upon me, and to thank you for the cordial support and assistance which the officers and members have given me at all times. It is to this cooperation on your part that the credit is due for any success of the year's work.

I bespeak for my successor the same loyal and ready help.

It has been the custom for the outgoing President to address the members upon the welfare of the Society. The reports of the Secretary, the Treasurer, and the Board of Trustees set forth the material prosperity of our Society, and clearly outline the needs which should govern your endeavors for the coming year.

Permit me, therefore, to digress somewhat from custom, and invite you into the field of history; to consider briefly the life of one the anniversary of whose birth is just past—a native of Belgium, whose work is one of the just prides of our profession; whose contribution to learning, one of the landmarks in the progress of human thought; and whose fame, indestructible by the wanton arm of the barbarian, is one of the imperishable glories of the University of Louvain.

Just four hundred years ago this week, on the first of January, 1515, Andreas Vesalius was born in the City of Brussels. Born to a family of ample means, he had the even better heritage of intellectual wealth. Through four generations his forebears had been men of training and ability, holding high rank in the medical profession of their day. His father was apothecary to the Emperor Charles the Fifth. His grandfather was physician to Mary of Burgundy. His great-grandfather taught medicine in the University of Louvain—even in the far distant days, a place of high repute; while his great-great-grandfather had published a volume of commentaries on Avicenna. Surely what was so bred in the bone was to come out in the flesh. Of his mother, we know only the maiden name — Isabella Crabbe — which would suggest an English descent, at least.

The early life of Vesalius was doubtless that of the ordinary lad of Flanders whose parents were possessed of wealth in that rich land of high commercial prosperity. We know only that from his early days he showed the irresistible bent of his mind toward anatomy.

Long before he went to the University he had become an expert dissector of the smaller animals, and acquired not only a practical knowledge of lower vertebrate anatomy, but also that swift and accurate dexterity which made his dissections later in life the wonder of the time.

After his early schooling, and a few years at the University of Louvain spent in the routine of classical training, it became evident that the youth must follow his desires; and so, at 17, he was sent to Paris to study anatomy under the foremost master of the day, Jacopus Sylvius. Learned, avaricious, and imperious, Sylvius was the last great exponent of Galenic anatomy. Showing the dissections made by his assistant to the class, he pointed out what was told in Galen's works; and if the cadaver failed to show the structures as described, that was not Galen's fault, nor in the least degree a reason for emending that authority.

This was not the way the handsome Brussels youth had come to learn anatomy. "My study of anatomy," he wrote, "would never have succeeded had I, when working at medicine at Paris, been willing that the viscera should be merely shown to me and to my fellow students at one or another public dissection by wholly unskilled barbers, and that in the most superficial way. I had to put my own hand to the business." So we have the story of his leaving his seat among the students during the third demonstration and, taking the scalpel from the clumsy barber, showing the class and doubtless the amazed Sylvius how a real dissection should be made.

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*The President's address before the Medical Society of the City and County of Denver, January 5, 1915.

And. Vesalius

One wonders if by chance that stirring scene was witnessed by the struggling barber lad, Ambroise Paré, who at twelve had started to Paris to study, saying that surgery was a matter of knowing anatomy and the use of his hands, not of Latin or text-books.

After three years of hard study at Paris under Sylvius and Guinterius, who taught the surgery of the day, Vesalius returned to Louvain, where, as in Paris, his severest task master was his own ambition and indefatigable will. He tried his hand at publishing a translation of Rhazes; but the study of the human frame was his real vocation. And for that, he must have dissecting material. Many are the well-known stories of his adventures and daring in obtaining bodies.

The spirit of the times was not favorable to such endeavors. The glow of the intellectual dawning of the Renaissance had not yet spread into the North. Flanders was Catholic; and the hand of the Church lay heavy on the human intellect. But in Italy the daylight had become bright; and in Venice there was not only enthusiasm over the new university at Padua, where the new learning was in the ascendant, but a certain joy even in opposing the edicts of the Church.

So, in 1537, Vesalius went to Venice, where, in ten months, he obtained from Padua his degree of Doctor of Medicine; and, so brilliant was his work, was appointed at the age of twenty-one Professor of Anatomy to the University.

Then began the brilliant days of the School of Anatomy at Padua. No longer clumsy uncoverings by unskilled barbers; but fine, careful dissections by the master's hand. No longer the dull routine of reciting Galen, but the very spirit of the new times enlivened the hall. Observation, careful and close; thinking, accurate and clear, were the order of the day; and the appeal of youthful accomplishment to youthful endeavor and industry was not unanswered. Never before, such lectures; never such a teacher. The hearers amounted soon to some five hundred. Even in Venice and Padua, the drain on anatomical material became severe; and again, as in Paris and Louvain, daring supplemented diplomacy to supply cadavers.

In the midst of the teaching and the honors, there came the vision of the great work: to produce a book on human anatomy which should be the expression of the new spirit of learning—complete in its scope, accurate in its details, and a work of art. For five years all his industry was to this end; and all his patience spent in spurring Stephen Calcar to the grewsome task of copying the dissections upon wood; of cutting each line so clear and sharp that every nerve and vein should show—and yet the whole present a plate of artistic worth. At last the long series was complete; the precious blocks were sent to the famous publisher, Oporinus, in

Basle; and in 1543, when Vesalius was but twenty-eight, the great book appeared.

Andreae Vesalii Bruxeliensis, Scholae
medicorum Patavinae professoris, de
Humani corporis fabrica Libri Septem
Basileae, MDXLIII.

The wealth of Vesalius and the fortune from his fees as teacher had been lavished on the plates and letter press of this glorious work. Nothing so sumptuous had ever been produced; nothing so artistic has since been published in medical literature. It is indeed the liber aureus of our profession.

"The title page is a beautiful engraving, which represents Vesalius at work dissecting a female subject. He is surrounded by interested spectators, who crowd the amphitheatre. The abdomen of the subject is opened. Vesalius has raised his left hand: his right hand grasps a small rod which rests on the viscera. The great teacher is talking to his pupils. Placed at the head of the dissecting table is an upright skeleton, which grasps a long staff with its right hand. In the audience are many persons of different rank. To the left a naked man is climbing a pillar; while to the right and below, a dog is being brought into the arena. To the left and below is a monkey, which appears to enjoy the demonstration. Above, in the architecture, we see the monogram of the publisher, Oporinus; in the center on a shield are the weasels of the Vesalius family, and below is a shield which bears the privilegium. This engraving is one of the most spirited and elaborate to be found in the whole range of medical literature." (Ball).

The volume, which is dedicated to Charles the Fifth, has six hundred and fifty-nine folio pages of text, with approximately seven hundred words to a page. The text, in clear, finished Latin, is brief and practical, being largely a simple description of the wonderful plates. There are seven chapters which take up in order—

The Bones and Cartilages;
The Ligaments and Muscles;
The Veins and Arteries;
The Nerves;
The Organs of Nutrition and Generation;
The Heart and Lungs;
The Brain and Organs of Sense.

Time will not permit any detailed account of the chapters. I must content myself with the briefest statement of some of the new discoveries contained within the pages. Vesalius set forth accurately the position and structure of the heart and the arrangement of the valves. He gave the first complete description of the sphenoid bone, the small opening in the tip of the pterygoid process of which still bears the name "foramen of Vesalius." He proved the sternum to have three, and the sacrum five, segments. His was the first description of the omentum and its connections with the stomach and colon, and his the first correct account of the functional structure of the pylorus. He described the pterygoid muscles, the ductus venosus, the course of the subclavian vein, the vena azygos, the number and relations of the cerebral ventricles. He pictured correctly the mediastinum and the pleurae, the tensor tympani muscle, the labyrinth, the vestibule and the long process of the malleus.

Such are only a few of the new facts set forth by Vesalius. But these alone, useful as they were, did not make the greatness of the work, nor was it alone these contributions which entitled him to the fame he won. It was the spirit of the work which made it great; the attitude of mind which opened the new era in anatomical knowledge.

Guy de Chauliac and Mondinus had written anatomies which were the vademecum of students for two centuries; but they were little more than meagre outlines of the anatomy of Galen. It was the incubus of this authority which had held back all progress and innovation until the time of Berengarius, just before Vesalius's day. A natural result of the dogma of authority established by the practice of the church, all learning became only an exercise in exegesis—in scholastic interpretation and comment. Whatever its usefulness in theology or ecclesiastic lore, its result in the realm of medicine and anatomy had been paralyzing. What Galen wrote—not what their eyes beheld—was all men saw. Even Sylvius, great as he was, could not believe the obvious fact in a dissection, if it differed from the word of accepted authority. Berengarius in Bologna had shortly before begun the teaching of anatomy upon new lines; but it was Vesalius who first established the right of fact and observation against tradition and authority in anatomy. It was this which made him the great Father of Modern Anatomy. As Michael Foster says, "Vesalius, inspired by the spirit of the new learning, did his work in such a way as to impress upon his age the value, not only of the results at which he arrived, but also, and even more so, of the method by which he had gained them. His disciples, even when they thought him greater than Galen, never made a second Galen of him. After him, backsliding became impossible; from the issue of his work onward, anatomy pursued an unbroken, straightforward course."

How strong had been the hold of Galen on men's minds can be appreciated from the fact that Vesalius himself, facing anatomical structures which made a full acceptance almost impossible, still followed the Galenic physiology. For instance, he says: "Just as the right ventricle draws blood from the cava, so also the left ventricle draws into itself, each time the heart is dilated, air from the lungs through the vein-like artery, and uses it for the cooling of the innate heat, for the nourishment of its substance, and for the preparation of the vital spirits, elaborating and refining this air so that it, together with the blood, which soaks plentifully through the septum from the right ventricle into the left, may be assigned to the great artery, and so to the whole body.

"Now the septum of the ventricles, composed as I have said, of the thickest substance of the heart, abounds on both sides with little pits impressed in it. Of these pits, none, so far at least as can be perceived by the senses, penetrate through from the right into the left ventricle; so that we are driven to wonder at the handiwork of the Almighty, by means of which the blood sweats from the right into the left ventricle, through passages which escape human vision."

If the publication of his sumptuous volume, which for two centuries was the source of practically all the illustrations of every anatomy published, brought fame, it also brought trouble to its author. Conservatism, authority, and envy attacked Vesalius for venturing to assert aught contrary to Galen. Foremost and bitterest of all in his attacks was his old teacher, Sylvius. One wonders if he had harbored through all the years the malice stirred by the boy's overzealous interference with the lecture. A long controversy ensued. Vesalius offered to prove all his statements by public dissections—but to no avail. A leave of absence was granted him to visit Basle and Brussels once more. On his return he found the academic fight more bitter than ever; and, in addition, treacherous undermining of his position by Realdus Columbus, his assistant, who had held the chair of anatomy in the university during his absence.

Whether it was disgust at the smallness of men, fatigue at continuing quarrels, or the call of worldly ambition we know not; but the following year Vesalius resigned his professorship, destroyed all his manuscripts and accepted the position of physician to Charles the Fifth. For twelve years he followed the journeyings of the great Emperor and the formalities of the Spanish court. He married and became wealthy as the fashionable physician of the royal entourage. Strikingly handsome as a man, conspicuous for his ability, and noted for his courtly manner, his worldly position was most enviable; but his success choked all future work in science or anatomy. Only once do we hear of a reviving interest.

In 1561 he was given a copy of the Anatomical Observations of Fallopius, who had succeeded to his chair at Padua. "Putting everything else on one side I gave myself," he wrote, "wholly up to the instant greedy reading of the pages which raised in me a glad and joyful memory of that most delightful life which, teaching anatomy, I passed in Italy, the true nurse of intellects. I still live in hope that at some time or other, by some good fortune, I may once more be able to study that true bible, as we count it, of the human body, and of the nature of man."

When in 1556 Charles V retired from the world to his cloister, Vesalius became in turn physician to his successor, Philip the Second, and accompanied him to the Low Countries. In July, 1559, Philip was married to Elizabeth, daughter of Henri II of France. The espousal was marked by great splendor. The Duke of Alva was proxy for the Spanish King; and the festivities closed two days later with a great tourney. Henri, jousting with Count Montgomery, was unhorsed, and a splinter from the Count's lance passed under the King's visor, through his orbital plate, fixing itself firmly in the skull.

The King's surgeon pronounced the wound a mortal one. In haste, couriers were sent to Philip at Cambrai, and two days later his physician arrived at Paris to give such counsel as he could. So at the bedside of the dying King, there met two of the foremost men of all time. Philip's physician, born to position and wealth, by intellectual brilliancy and industry had made his name famous at 28. Henri's surgeon, without family or backing, self-educated in the school of experience, by sheer determination and hard work, had raised himself from a penniless barber boy to be the trusted surgeon of the Kings of France. He likewise, when only 28, had published the best-known work on surgery of the day. How much would we not give for an account of what passed between Ambroise Paré and Andreas Vesalius!

We have no record. We only know that before they parted, Vesalius had graciously given Paré permission to use the plates of his great work to illustrate a forthcoming book on surgery. This, too, was to be an epoch-making book, for it was written, not as Vesalius's was, in Latin for the learned, but for the first time in French, in the language of the common people, to give instruction in anatomy to the barber surgeons. As Vesalius's volume had overthrown the rule of authority in anatomy, so Paré's volume, with Vesalius's illustrations, put an end to the power of tradition in surgery. Is it not inspiring, in the midst of today's warfare, to think of this Belgian and this Frenchman allied together four hundred years ago, for the spread of knowledge and the establishment of the freedom of human thought!

The rest of the story is soon told, and sad it is. In 1563 Vesalius resigned his position at court and made a pilgrimage to Jerusalem—no easy or safe task in those days. Various stories are told of the reasons for this act—a vow made for recovery from illness; a penance for making an autopsy on a man in cataleptic trance, but still alive; to escape the Inquisition; a refuge from a scolding wife—you may take your choice! May it not have been in simple weariness of the world and its fashion—successful and happy though his life seemed to the ordinary view? May he not have sought refreshment of spirit from visiting the scenes where lived One who, having put his hand to the plow, turned not back, and was not disobedient to the Heavenly Vision?

On his returning journey, it is related—but without any proof in evidence—that Vesalius was offered once more the chair of anatomy at his old university of Padua. If so, he never filled it; for he was shipwrecked on the voyage home, and perished miserably of cold and want on the island of Zante, sometime in 1564.

Vesalius's reputation was made through industry inspired by the enthusiasm of youth.

His service to medicine was the establishment of anatomy as an exact science.

His fame is imperishable, for he was one of those who have helped liberate human thought from the shackles of authority.

305 McPhee Building.

BRAIN ABSCESS OF OTITIC ORIGIN.*

FRITZ LASSEN, M.D.
PUEBLO.

Every time I face a case where the diagnosis of brain abscess is imminent I realize how meagre our knowledge is concerning the symptoms of diseases where the central organs are involved. In every department of medicine and especially where surgical measures may be needed, early diagnosis is the chief factor of success.

The early diagnosis of brain abscess is usually impossible, and even when we have reached a decision that abscess exists, the localization is another difficulty still harder to overcome.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

In order to illustrate how easily a brain abscess may be overlooked, I wish to relate a case I saw about ten years ago.

A boy had undergone a radical mastoid operation. He remained in the hospital about two months, and was carefully observed while under after-treatment for the operation. He made an uneventful recovery and went back to school. Several months later he was knocked down by a bicycle, and while at first the slight blow seemed to be of no significance, very soon grave symptoms developed and the boy died. The autopsy revealed the astonishing fact that death was due to rupture of an enormous abscess of the right temporal lobe. An abscess of such large size without noticeable symptoms must have existed for a very long period, yet in spite of the fact that the patient had been for months under constant surveillance the existence of an abscess had never been suspected.

We have been repeatedly told that in cases of otitis or mastoiditis a slight concussion or lesion of the head might produce brain abscess. This is surely a mistake, but a trauma may stimulate the growth of an existing brain abscess, or cause its rupture into a ventricle, or bring it from a stage of latency into activity.

The concussion of mallet and chisel during a mastoid operation is probably often a sufficient cause. A case from my own experience which I will relate later seems to me to be proof of this.

Brain abscesses are caused very much more frequently by chronic otitis media than by acute otitis. In the latter case the brain abscess may be in existence even before the otitis seems to be severe enough to cause a perforation of the ear drum. The chronic or acute otitis may have subsided for a long time before the brain abscess, caused by it, comes to observation.

Otitis media is the cause of one-third of all abscesses of the brain. They have their seat most frequently in the direct neighborhood of the diseased ear or bone, mostly in the cerebral hemisphere and here again usually in the temporal lobe (third temporo-sphenoidal convolution), at times extending into the occipital lobe. Less frequently they are found in the cerebellar hemisphere, and mostly in the anterior part of the lateral lobe, the one which adjoins the temporal bone, very rarely in the pons or the crura cerebelli, which are not in relation with the temporal bone.

The brain abscess is not always in direct communication with the suppurative source there being at times an intervening layer of normal or only slightly diseased brain substance. Usually, of course, we find brain abscess in those cases of otitis which are complicated by disease of the temporal bone.

It used to be supposed that otitic brain abscesses were nearly always solitary, but according to the literature it seems that multiple abscesses are not so very infrequent. In some cases of so-called multiple brain abscess of otitic origin, the diagnosis seems to have been wrongly based upon the presence of metastatic or pyemic abscesses. I myself have seen only solitary otitic brain abscesses.

Some brain abscesses are no larger than a pea, while others may involve the greater part of the cerebral or cerebellar hemisphere. Yet very often the smallest abscess may produce the most serious symptoms, while a very large one may be in the latent stage and escape observation.

The latter is the case when an abscess grows slowly in the course of years, and the pressure upon the involved parts of the brain increases so gradually that the nerve centers become accustomed to the changed conditions and do not show symptoms of pressure or irritation.

A few years ago I operated on a girl for an old chronic otitis media and cholesteatoma. Afterwards I opened an abscess of the temporal lobe which was of the size of a large hen's egg and contained about four ounces of pus, and which extended into the occipital lobe, but which nevertheless had not shown any characteristic symptoms outside of headaches until a few days before I diagnosed and operated on the case. More than half of the abscesses of otitic origin are encapsulated in a so-called pyogenic membrane, which at first is thin but in later stages becomes thick, at times as much as 5 mm. thick. Yet this capsule which separates the abscess from the healthy brain substance does not offer any protection against further spreading or rupture.

The primary stage of an otitic brain abscess, the stage of development, is usually of very short duration and, as its symptoms of fever, headache, chill and vomiting are easily attributed to the existing otitis media, its significance is commonly not recognized.

I once saw a case in this stage and did not realize the fact until several weeks later. We had operated on a young man for an uncomplicated mastoid abscess. After five uneventful days the patient complained of very severe headaches, his temperature rose, and he had a number of severe chills. As the mastoid wound showed no alarming signs and his condition after two days returned to normal, we did not find any explanation for the short period of abnormality. The patient was discharged as cured with normal ear and normal hearing. Four weeks later he returned to our hospital with symptoms of brain abscess, which a complete amnesic aphasia easily located in the left temporal lobe. Only then did we realize that we had witnessed six weeks previously the initial stage of a forming brain abscess.

The primary stage either is followed directly and rapidly by the stage of active symptoms, which may last from a few weeks to one year but rarely more than two months, or as in most instances it subsides into the stage of latency. This may last from a few weeks to many years before it turns into the stage of the active symptoms.

The patient may be entirely well without any symptoms of the serious condition which exists in his brain or his well-being may only at intervals be disturbed by periods of violent headaches, spells of vomiting, constipation, etc.

Six years ago I operated on a girl, 21 years old, whose history I wish to relate in a few words. The patient had had scarlet fever in childhood, a discharging right ear for thirteen years, and for the last five years spells of vomiting and headaches at regular intervals of about three to four weeks. Operation for appendicitis and gall-stones as well as other therapeutic measures did not relieve this vomiting. There were no symptoms of labyrinth involvement or other complications of the otitis, with the exception of extensive necrosis of the mastoid bone. Radical mastoid operation revealed extensive necrosis, cholesteatoma and a small extradural abscess above the tegmen. The patient made a normal recovery but the vomiting spells continued. A few weeks later symptoms of brain abscess set in very suddenly and very violently. I found an abscess of enormous size in the right temporal lobe. This case is interesting for two reasons. The regular recurrence of vomiting spells during five years prove that the brain abscess had existed in a stage of latency for at least that length of time; and it is very likely that the mastoid operation caused the stage of latency to develop into one of activity.

When we try to diagnose a case where otitic brain abscess enters into consideration we must remember that many symptoms may be, but none of them has to be present, that the symptoms may apparently contradict each other and be confusing, that an affection of the right side usually gives less information than one of the left, and that the difficulty is further increased if both ears may be the cause of brain complications.

The general symptoms of otitic brain abscess so far as they depend upon the presence of pus are hardly of any value in diagnosis, as they may all be found in any case of uncomplicated otitis media. One thing I should like to mention is that uncomplicated brain abscess usually produces no fever but frequently subnormal temperature.

Of the brain pressure symptoms I will refer only to the most important.

There is first the slow pulse with its increased tension and very high elevation (cephalic pulse). It seems doubtful whether brain pressure is always the cause of this symptom as its distinctness is frequently out of proportion to the little space a small abscess occupies in the cavity of the skull. In some cases it is probably due to the irritation of the nervus vagus by toxins. The optic neuritis, existing in fifty per cent of cases of brain abscess is also a symptom of toxic origin.

Important, because seldom absent, are severe headaches, nausea and the characteristic cerebral vomiting. Frequently changes in the temper and disposition of a patient first call our attention to a possible existing brain abscess. He varies between depression and exultation, his answers come slowly, his speech is drawling, his memory is impaired, he is somnolent, etc.

Important amongst the localizing symptoms of abscess of the temporal lobe is paresis or paralysis of the opposite extremities and of the opposite facial nerve, at times combined with opposite hemianesthesia. Previous to these we find frequently manifestations of irritation in the form of convulsions. These are caused by the influence of the abscess upon the respective nerve tracts in their course through the posterior crus of the inner capsule.

Of the symptoms related to other cerebral nerves I wish to mention only paralysis of the oculomotorius of the same side as of special diagnostic value. It is usually only a partial paralysis. At times we see only ptosis, at times also disturbance in accommodation. In extreme cases there exists maximal dilatation of the pupil, with loss of reaction to light, accompanied by divergent strabismus.

At times certain disturbances of speech will be a help in the localization of left sided abscess. But these have also been found in cases of extradural and intermeningeal abscess of the left side.

The symptom of decrease of hearing in the opposite ear is of little value. It may be due only to increasing somnolence or may have its cause in hyperemia of the labyrinth.

Sensitiveness upon percussion and dullness of the percussion-sound are very uncertain as localizing symptoms. Suddenly appearing edema over the temporal bone is often significant of abscess of the temporal lobe.

The diagnosis of abscess in the cerebellum must depend to great extent upon the fact that, while the general symptoms of brain abscess exist, the conditions for the forming of an abscess in the cerebellum prevail, especially labyrinth suppuration and thrombosis of the sigmoidal sinus.

Vertigo may be totally absent, but if it exists it is not a reliable symptom, as it may be due solely to the original ear disease.

The most important symptom of cerebellar abscess is intense pain in the back of the head. If cerebellar abscess is suspected it is also very important to count the respiration regularly. Often an early decrease in the frequency of respiration will take place through pressure upon the center of respiration. With increasing pressure the disturbance in respiration becomes more and more distinct, and at last paralysis of the center may occur.

Suppose now we find one or some or all of these symptoms, we have to remember that a simple otitis media or mastoiditis, especially in children, may produce a picture of brain abscess with all its characteristic signs. We must further consider tuberculosis of the brain, brain tumor, labyrinth affection, extradural abscess, subdural abscesses and meningitis.

From my hospital experience I remember several cases which prove the difficulty often encountered in differential diagnosis. I saw a case which was operated on for abscess and where we found tumor. One other case was diagnosed as brain abscess, but in spite of the most pronounced symptoms of the left-sided temporal abscess, at operation nothing was found. This patient afterwards died of empyema of the pleura. The section of the brain did not reveal any pathological changes which might have caused the symptoms of brain abscess, and the pathologist rendered the opinion that hysteria might be the only explanation.

Five months ago I operated on a case which offered the greatest difficulties in differential diagnosis, and where localization of the existing brain abscess proved to be impossible. A three-year-old child was taken sick with violent pains in the back of the head, vomiting spells, slight rise of temperature and subsequent unconsciousness. The only previous disease had been an abscess in the right middle ear one year earlier. The Wassermann test was positive. The nervous and muscular symptoms were confusing. The diagnosis lay between meningitis and abscess in the temporal lobe. The spinal fluid was sterile. The neck and spinal column were free from sensitiveness and rigidity. Temporal abscess seemed to be most probable. Operation revealed nothing in the temporal lobe. The postmortem showed instead of the expected temporal abscess two abscesses of walnut size in each frontal lobe. The laboratory examination proved them to be of specific nature. Localized meningitis at the base was also found, in spite of negative spinal fluid findings. (The child had been under specific treatment from the time grave symptoms had developed.)

Our findings at operation will frequently not correspond with the symptoms we have observed. I have in mind a case of left-sided otitis and mastoiditis, which developed the following symptoms: slow replies to questions, somnolence, next day aphasia, right facial paralysis, nystagmus, pupils equal and reacting, continuous spasm of the right arm and leg and paresis of left arm and leg, lumbar puncture clear, choked discs. At operation we found pus in the left antrum, and abscess of the left temporal lobe. After operation all the symptoms cleared up and the patient recovered.

How can we explain the paresis of the left side and why did it disappear immediately after operation? The recovery of the patient proves that neither a second abscess nor a purulent leptomeningitis can have been in existence. We must suppose that the abscess caused a serous meningo-encephalitis which through pressure gave rise to the collateral symptoms.

I have purposely not gone into consideration of the X-ray as a diagnostic help, because my own experience is too limited to allow me to judge as to its value.

After successful diagnosis and operation the prognosis is still very unfavorable. A second abscess may exist or secondary meningitis may occur even comparatively late after operation. This meningitis is not of traumatic origin from the wound, but develops in the following manner:

Softening of the brain substance surrounding the abscess causes hydrops of the ventricles (manifested by brain prolapse), which may easily be infected by germs reaching the ependyma, or in other cases the pressure of the ventricular hydrops destroys the thin layer of brain substance between ventricle and abscess, and the infection enters directly into the ventricle.

Concerning operative procedures, only a few words: There is a difference of opinion as to whether brain abscess is better opened through the mastoid wound or through an independent external incision. I advocate the latter method, and have always pursued it in cases where there was no direct connection between the mastoid lesion and the brain abscess. The chance of infection of the brain from the mastoid abscess in case of wrong diagnosis is avoided by using this method.

DISCUSSION.

Robert Levy, Denver: The subject of brain abscess is a very large one. Upon certain questions relating to this condition we are all apt to agree, while concerning other questions we probably must differ, depending largely upon individual experiences. These experiences are necessarily limited. Nevertheless the placing upon record of one case alone occurring in the observer's experience may offer many useful suggestions.

Dr. Lassen's paper is exceptionally useful. Regarding symptoms I should like to have heard Dr. Lassen emphasize the importance of headache. This after all is one of the most constant symptoms and therefore of greater importance than others. One of the most confusing conditions in the study of brain abscess is the period of latency. During this period a train of fairly suggestive manifestations is brought to our attention and should be given serious consideration. This consists in the symptoms referable to the general condition of the patient, namely, loss of weight, constitutional depression, anorexia and a foul odor of the breath. These general symptoms, together with persistent localizing headache in a case suffering from a chronic suppurative otitis media, are extremely suggestive.

Blood examinations unfortunately are not nearly so reliable as might be expected. For instance, in a series of cases reported by Dench he found in five out of eight cases no change in the white blood count or in the differential count, while in three of these cases there was a polymorphonuclear count of eighty per cent showing that little reliance can be placed upon this laboratory investigation upon which we depend in other conditions.

The combination of meningitis and brain abscess is one of the most confusing because of the introduction of meningeal symptoms which modify the usual symptoms of brain abscess. In brain abscess we find low pulse and low temperature. These are modified by acute meningitis, in which we not infrequently have rapid pulse and high temperature. This naturally leads us into the error of considering the case one of meningitis, when, as a matter of fact, meningitis is only a complication of the brain abscess.

James J. Pattee: The discussion of this paper has been pretty fully covered, but I feel that the disease, although rather rare, is very important because it is hard to exclude other diseases and complications easily confused with it. It also is of great importance because of the fact that insurance companies frequently request referees to investigate the histories of cases in which they feel an abscess may develop. I think the clinical history is of the utmost importance both in brain abscess and the antecedent conditions. Cases vary very greatly in virulence, rapidity and clinical evidence, depending on the causative organism. These cases offer every opportunity for team work. The more complicated a disease may be, the greater the need for team work, and as the the localized functions of the brain are being studied by neurologists, they could help us greatly in determining whether or not the nerve functions are normal. The bacteriologist is of invaluable assistance in isolating cultures from the sinus, and the pathologist may be able to determine valuable facts from the spinal fluid. I think, too, that the question of labyrinth infections should be carefully investigated, because many of these cases originate from that source on account of the free communication between the labyrinth and the brain.

W. C. Bane: The doctor spoke of the X-ray. A few years ago I had a man under my care with symptoms of abscess of the brain. I did a radical mastoid operation and for a time the man improved, but he did not get well. Dr. Childs made an examination, and the X-ray showed a decided shadow suggestive of brain abscess. Dr. Fowler operated and found an abscess where it had been located by the x-ray. It was a chronic abscess, with marked thickening of the walls, as was demonstrated later by post-mortem examination.

Fritz Lassen, Pueblo: It is a rather difficult task to cover the subject of "Otitic Brain Abscess" in a talk of fifteen minutes' duration. My object in writing this paper was to refer on the basis of cases in my own experience, only to the most important symptoms of brain abscess of otitic origin and to the difficulties and frequent impossibility of differential diagnosis.

On account of the short time available, I did not mention all the symptoms in every case, nor all the methods of examination employed, nor all the reasons for or against this or that diagnosis in each particular case. I tried to mention only the facts which seemed to me the most important ones in that particular instance. I took it to be understood that in each case examination of the blood, lumbar puncture, etc., had been made, but refrained from dwelling upon those facts.

I am glad Dr. Levy laid stress upon the diagnostic value of headaches. These really seem to be, outside of vomiting spells, the only symptom which might arouse our suspicion of existing brain abscess at an early stage. The trouble is that the headaches alone, with other characterististic symptoms lacking, will not allow us to make a diagnosis of brain abscess, and generally, when the more important symptoms develop so that we are able to make a correct diagnosis, the significance of these long-existing headaches is realized too late.

It was interesting to me to hear from Dr. Bane that he had diagnosed one case of brain abscess by means of x-ray. I never have had a chance in my experience to have an abscess localized in that way.

None of us like to brag about mistakes in diagnosis or operative failures. But we all know that we can frequently gain more knowledge from one failure than from many apparently splendid results, because in the latter cases we often do not know how much our diagnosis and operative measure accomplished, and how much was due to incidental circumstances or to nature's wonderful assistance.

We hear for instance of cases where the diagnosis of brain abscess was made correctly, where the operation was apparently successful, and where the patient died nevertheless, not from the abscess or conditions connected with it directly, but, as the post-mortem showed, from a unilateral meningitis, which apparently was responsible for the symptoms of paralysis, while the abscess was not the cause but merely an incidental finding. This may easily be explained, as the motor centers for the contralateral extremities and for the contralateral facial nerve are localized in the cortex cerebri, and may be compressed and paralyzed by the purulent leptomeningeal membranes.

Therefore we should try to educate the people of this country to the necessity and benefit of the post-mortem.

"TWILIGHT SLEEP."

C. B. INGRAHAM, M.D., F.A.C.S.,
DENVER.

What I have to say of "twilight sleep" does not come from personal experience, but is an impression of the subject gathered from a recent trip to Baltimore and New York city. The interest which is being manifested by physicians in this treatment was a surprise to me. In most of the larger hospitals in the east it is in use, and while not all the men are enthusiastic or are advocates of the Dämmerschlaf, it is nevertheless being given a thorough trial.

Dr. K. Schlossingk, a former assistant at Krönig's clinic in Freiburg, is at present in this country and unable to return to Germany. He has been demonstrating the Freiburg technique at the Sloan Maternity, Mt. Sinai and other eastern hospitals. An excellent opportunity to hear this subject discussed was at the last dinner of the Sloan Hospital Alumni Association, which it was my privilege to attend. Dr. Knipe, who has recently returned from a visit to the Freiburg clinic and has been carrying out twilight sleep at the Gouverneur Hospital, read a paper which was discussed by Cragin and other well-known New York obstetricians.

The use of scopolamine in obstetrics is not new. Von Steinbuchel in 1902 first suggested its value. Gauss of Krönig's clinic further elaborated the technique in 1906, and published a report of 600 cases. Notwithstanding the good results claimed, the treatment was opposed by Veit and Leopold as being dangerous to the infant, a cause of post partum hemorrhage and of prolongation of labor. The treatment then fell into disuse and was practically abandoned until last autumn, when Krönig reported 3,000 cases, and again proclaimed its virtue. This report from so distinguished a head of a reputable German clinic was sure sooner or later to cause a revival and trial of this method of "painless labor," but there is no doubt that the enthusiastic regeneration of the subject has been brought about by the popular articles which have appeared in the June issue of McClure's Magazine and in the Ladies' World, and the many articles which have so crowded the war news on the front pages of our daily papers.

The treatment is begun when the patient is definitely in active labor. The pains should be regular, ten minutes apart, preferably at shorter intervals. When given too early primary inertia may result.

The room is darkened and kept quiet, the eyes are covered, and the ears stuffed with cotton. If the patient is in a hospital, it is preferable not to move her to the operating table for delivery, but in order to avoid external stimulation, to finish the labor in the bed.

The popular and best method of administration is that recommended by Krönig and Gauss. The injections of scopolamine are regulated by the patient's memory, the success of the treatment being dependent upon this test. Abolition of memory is the point desired.

An initial dose of 1-6 grain of morphine muriate is given, or in place of morphine Krönig recommends ½ grain of narkophen (morphine-narcotin-menconat) a synthetic opiate constructed by Straub and prepared by Böhringer Söhne of Mannheim. It is supposed to be less toxic than morphine and less depressing to the respiratory center, especially of the child. As a matter of fact, it probably makes little difference whether narkophen or morphine is used, and I understand that Gauss still uses morphine with his private patients. The important part to emphasize is that but one dose, the initial one, is all the morphine which should be given throughout the whole treatment. It is the depressing action of morphine, with scopolamine, which is so dangerous to the baby. Rarely a second small dose of morphine may be given, but this is bad policy if it can possibly be avoided. With the first dose of morphine 1-150 grain (0.00045 gm) of scopolamine hydrobromide is injected intramuscularly and repeated three-quarters of an hour later. About one-half an hour after this injection the memory tests are used; the patient is shown some familiar objects and a few minutes afterward asked if she has seen them before, or she is asked if she remembers things that have been done, such as having received an hypodermic. One mistake is an effort to secure loss of memory, or amnesia, too quickly. This usually requires one and a half to two hours to obtain. According to the patient's condition of memory, a 1-400 grain of scopolamine may be given three-fourths of an hour or longer after the second dose, and the repetition of injections of 1-400 grain of scopolamine is now primarily gauged by the degree of amnesia present. Subsequent doses regulated by testing the memory every half hour, are required about every one and one-half to two hours. The pulse, respiration, pupillary reaction, reflexes and uterine contractions are watched. Every half hour the foetal heart beat should be counted to determine the child's condition.

Another method of administration is that of Siegel of Freiburg (Deut. Med. Wochenschrift, No. 21, 1914). The first two doses are the same as described by Krönig, after which, at stated intervals, the drug is given, regardless of the memory test. The intervals and amounts are averages which he has obtained, and the method is described in order to simplify the procedure for the inexperienced. Patients show varying degrees of susceptibility to scopolamine, however, and the best success is secured by maintaining amnesia with the minimum dose for each case.

When scopolamine is given the patient reaches one of three stages. She may be wakeful, alert, feel pain and remember everything, which will mean that not enough drug has been given, or she will be semi-conscious, will not remember. There is a "prolonged interruption of mental associations," amnesia. The patient is conscious of pain. She may express this by noise or facial expression, but it is lessened and almost immediately forgotten. This is the stage which it is desired to maintain.

Occasionally during the treatment the patient will be conscious and remember certain parts of her labor. Such periods are expressed by Gauss as islands of memory, and even if the majority of the labor is carried out in a condition of amnesia, and the patient recalls certain parts, she may think when it is over that she remembers all, and the treatment be a partial failure Especially is this so if she is conscious when the child is born. Such conscious periods are best controlled by a few whiffs of chloroform or ethyl chloride, or, though it is said cautiously, by a small dose of morphine. It is well to give chloroform when the head is being born.

When too much scopolamine and morphine have been given the patient is unconscious, feels no pain, the reflexes are absent, the pupils are dilated and a positive Babinski is present. Such a condition is extremely dangerous to the child.

The patients when under the treatment are flushed, complain of a dry mouth, are drowsy and sleep lightly between pains. The pulse is usually slightly elevated. The contractions are felt with the hand on the uterus and occur at normal intervals. The patient will manifest her suffering to a greater or less degree, but immediately doze off again. Occasionally there is restlessness or excitement, it being necessary to restrain the patient in bed. A whiff of chloroform is useful here or even a small dose of morphine is necessary.

In a certain percentage of cases the treatment is a failure. Gauss reports 70 per cent of successes and Krönig obtained complete amnesia in 80 per cent. A certain number of women are seen when too far advanced in labor to have sufficient time in which to obtain amnesia. In others inertia develops and the treatment has to be abandoned; and occasionally, though the patient will doze off, memory is retained.

The effect on the child is one of the principal reasons advanced against the use of this treatment. A certain number of babies —about 20 per cent or a little less—are born in a condition of asphyxia or in oligopnoea. Oligopnoea is explained by Gauss and Holtzbach as a condition of depression of the peripheral filaments of the vagus, caused by the scopolamine during intra-uterine life. The respiratory center in the medulla requires a longer period to accumulate a sufficient quantity of carbon dioxide to stimulate breathing. When the child is born it will breathe and sometimes cry immediately, but following this there is a drop in the heart rate and the respiration is shallow. Within five to ten minutes the child gradually resumes normal heart and respiratory actions. The condition is not dangerous, and a child in oligopnoea does better when not interfered with. A certain number, however, are deeply asphyxiated and require vigorous treatment. Occasionally one is lost. A number of men who have used the treatment in fifty or more cases, however, report a foetal mortality of not more than 3 per cent, which compares quite favorably with normal labor.

The usual preparations of scopolamine deteriorate rapidly, and differ in purity and in therapeutic action. To have proper results it is necessary to have a drug which is stable and accurately standardized. Hoffman La Roche have on the market such a preparation made up according to the method prescribed by Straub. It is preserved by mannite. A dozen ampoules, each containing 1 c. c., representing 1-150 grain, now sell for $5. But the scopolamine can be prepared just as satisfactorily at the cost of about 1 cent per ampoule. To a 10 per cent solution of mannite in distilled water, scopolamine hydrobromide is added so that each c. c. represents 1-150 grain, or 0.00045 gm. This is then put into ampoules of Jena glass and sterilized in a steam pressure sterilizer for forty minutes. Dr. Knipe of New York city uses this preparation, and finds it as satisfactory as that obtained from abroad.

There has been a good deal of discussion as to whether or not hyoscine is the same as scopolamine. Both are levorotary, have the same physical and chemical properties, and, as far as is ascertained, the same physiological action. Products of decomposition from scopolamine are detected by the addition of a dilute potassium permanganate solution, which shows a brownish color.

Provided a moderate amount of scopolamine has been used, the child will be entirely free from the drug within fifteen minutes after birth. The mother's milk contains a trace for about three days, but in such small amounts as to be without harm to the child.

The advantages claimed for this treatment are, that the labor is painless, that is, practically painless. The woman experiences some pain, but it is lessened in amount, and almost instantly forgotten. When the method is successfully used, it suggests comparison between a surgical operation with and one without an anaesthetic. In observing patients who have had this treatment and comparing them with those in the same ward who have not received it, there is no doubt that there is less shock in the former group; they are less fatigued and in much better physical condition. It is an aid in the long, nagging first stage of labor, which is really the hardest part for the patient to bear.

As to its disadvantages, we have several. Of primary importance is the slightly increased risk to the child, a few children undoubtedly being lost which would otherwise be born alive.

There is probably very little increased risk to the mother. The second stage of labor is undoubtedly prolonged, often several hours. This is both hard on the child and a cause of morbidity to the mother, and increases the number of operative deliveries. Pituitary extract may be given, but by some the combination of scopolamine and pituitary extract is considered dangerous to the child. The different stages of labor are not so readily determined. Interference may be required and the condition not recognized, or without warning there is a cry and the child is found delivered under the covers. More frequent vaginal examinations are required, each with its risk of infection, though with experience one determines conditions quite readily by rectal examinations. It is necessary to be ready to interfere at any time when the foetal heart shows, by becoming slow, that it is in poor condition. This may be in the first stage of labor, when the cervix is not fully dilated, and often means nice work to secure a successful maternal and foetal issue. It requires a better knowledge of obstetrics to recognize and handle emergencies than when the drug is not being given. One may say then that scopolamine cases should be in the hands of the specialist. A certain percentage of cases are failures in that amnesia is not obtained. Last if not least, the obstetrician must be on hand all the time the drug is being administered, that is from several hours to days or longer, or else he must have assistants or a nurse who are well trained in this special work. "Watchful waiting" is surely the keynote to success in this treatment. If the treatment warrants it, this last consideration should possibly not be a factor, but at least such a sacrifice of time demands a large fee.

The claim that post partum hemorrhage is more frequent after the use of scopolamine is not borne out, and, so far as we know, the suggestion that the drug may have a late deleterious effect on the child or mother is not substantiated. The oldest statistics come from Freiburg, where no late untoward effects have been noted.

1405 Glenarm Place.

A Clean Bakery. The following sign, advertising a New York bakery, was recently quoted in the New York Evening Sun:

"Our bakery is not in a basement where it can't come in fresh air, and what makes not to be clean.

"But our bakery is on the grand floor windows with enough fresh air and sunshine and that means clean enough.

"We'll be very much pleased to show all apartments and machinery from our Bakery which is made after the sanitary rules from the Board of Health.

"We BAKE fresh every hour.

"We burn the COFFEE ourselves."

EPIDEMIOLOGY OF POLIOMYELITIS.*

J. W. AMESSE, M.D.,
DENVER.

In the seventy-five years that have passed since Heine first associated infantile paralysis with a definite lesion of the spinal cord, our knowledge of this affection has grown from a few isolated facts to an almost complete conception of its natural history, while its literature has developed from nothing to truly imposing proportions.

It is not to be inferred, however, that so recent a recognition of this disorder as a distinct entity classifies it among the diseases of modern times. As a matter of fact, poliomyelitis may be rather clearly traced back to a very early period.

Suggestive cases are described in the sacred writings. J. K. Mitchell found striking evidences of the disease in the skeleton of an Egyptian mummy dating back to 3700 B. C. It is a matter of common knowledge that Sir Walter Scott suffered an acute infection in childhood, unquestionably poliomyelitis, which left him with a deformed and atrophied leg. In 1774, Underwood described it in his treatise on "Diseases of Children." Heine, in 1840, was the first to outline clearly the clinical manifestations and the differential diagnosis. In the following year Colmer, a country physician of Louisiana, recorded the first epidemic. It was not until 1890 that Medin reported to the Berlin Congress of Medicine the result of his observations in another epidemic among the children of Stockholm, incorporating in this report some valuable studies made by Bergenholz in 1881.

Since this time epidemics have occurred with increasing frequency, and have, through the various channels of communication, carried the disease to all parts of the temperate zone, the tropics having been invaded but twice (Cuba and Nauru). The most serious of these epidemics have been the following: In Vermont, 1894, 126 cases; Norway and Sweden, 1905, 1,500 cases; New York City, 1907, 2,500 cases; Los Angeles, 1911, 300 cases; Buffalo, 1912, 400 cases, and Vermont, 1914, 250 cases.

Manning has collected data on 46 epidemics from 1843 to 1905. He has also described five American pandemics between the latter year and 1912, most of these originating in the east and extending along routes of travel westward.

Eighteen states have had epidemic outbreaks of acute anterior poliomyelitis since 1907, while sporadic cases have been noted in practically every large community in the country. Whether the general dissemination of the infection can be attributed to an extension from the focus in Scandinavia is a matter of conjecture, but certain it is that in the propagation of this formidable disease the United States has suffered most severely. (Frost.)

Lovett declares that of the 8,000 cases reported from 1905 to 1909, 5,500 occurred in this country. If we could, in addition, determine the number of invasions unrecognized, and the number occurring outside the so-called territory of registration, we should doubtless appreciate more keenly the magnitude of this problem from a public health viewpoint.

Certainly any disease possessing a mortality rate of 15% to 23% and producing grave disability in probably 60 per cent of the remaining cases, well merits the consideration of this Society.

The protean manifestations of infantile paralysis make any epidemiological study of the infection exceedingly difficult. Many cases, as stated, go unrecognized, and many valuable data associated with these and with the fleeting picture of abortive cases are in consequence lost to the field worker. Enough has been uncovered, however, to shed light on many hitherto obscure features and to better equip the physician with the ways and means of prophylaxis.

Of the several agents concerned in the propagation and spread of poliomyelitis, our interest naturally centers first on the chief etiological factor.

The Causative Organism.

Up to the present decade the possibility of this disease having an infectious origin was scarcely considered. The great epidemic in Sweden and Norway in 1905 permitted Giersvold to isolate from a series of cases an organism in pure culture which he described as a bean-shaped diplo- or tetracoccus. He produced paralysis in mice, birds and guinea-pigs by intra-venous injections of pure cultures and his work was confirmed in 1908 by several investigators of repute. From this time on numerous claims were made of the discovery of micro-organisms in the cerebro-spinal fluid of acute cases. Dixon, of the Pennsylvania State Health Department, published most interesting findings in 1911, and reported the occurrence of organisms allied to the protozoa in the blood stream of patients in the acute stage. Beneke of Marburg demonstrated Gram-positive bodies in the pia and cord.

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Proescher of Pittsburg, in 1913, after many years devoted to the study of rabies, announced the isolation of a pleomorphic spirochete and described the entire cycle of rabies virus. He noted the striking clinical analogy of epidemic poliomyelitis to epidemic rabies, and made smears from the cervical cord of a case of infantile paralysis. On staining with azur-carbonate, this smear exhibited numerous coccus-shaped bodies.

Proescher's work was followed in a few weeks by a report from Flexner and Noguchi proclaiming the isolation in pure culture of the organism of poliomyelitis. The work of the Rockefeller Institute confirms the observations of the earlier investigators noted, and establishes, through cultivation and inoculation experiments, the direct relationship between this biologic agent and infantile paralysis. It is described as "a pleomorphic, motile, anaerobic, pathogenic, obligative hemoprotozoon; with a developmental cycle consisting of a resting motile, dividing and resistant spore stage, which elaborates a virus having a destructive affinity for myelin and susceptible to great modification and augmentation; capable of pure culture in an anaerobic preparation of a solid or fluid, sterile living body tissue; reacting specifically to the azur-carbonate dye; bearing a strong clinical and histologic resemblance to rabies." (Frauenthal.)

Noguchi has devised a method of staining the parasite in film preparations and in sections from infected tissues. The minute size of these bodies and the manner of distribution render their demonstration in stained sections rather difficult. Amoss, a co-worker of Noguchi, has made a successful endeavor to overcome this difficulty by incubating the nervous tissue to be sectioned long enough for the parasites to increase materially in number. In this way he was able to show short chains of the globoid micro-organism frequently enough to indicate postmortem multiplication. In the same series of experiments this contributor isolated the parasite from the blood stream on the twelfth day of attack.

Experimental Transmission.

The discovery of the infecting agent was preceded by a brilliant series of inoculation experiments, in which the filterable virus from the spinal cord of fatal cases was transferred to monkeys. Landsteiner and Popper, in 1908, were the first to successfully transmit the disease, an emulsion of the cord being injected intra-peritoneally. In 1909, Flexner and Lewis, using the intra-cerebral route, carried the transmission through twenty-five series of monkeys. Their work was confirmed and advanced by Strauss and Huntoon, Leiner and Weiser, and especially by Levaditi. These and others have produced infection in many ways. Emulsions of the cord have been successfully injected into the meninges, the nerves, nerve sheaths and peritoneum. The disease has been produced artifically by introducing the emulsion of the stomach and intestine; by rubbing it on the mucous membrane of the nasal passages; by enforced inhalations and by subcutaneous inoculation. The virus has been found, not only in the blood and spinal fluid, but also in the salivary, the mesenteric and other lymph glands and in the spleen. From the experiments of Kling and Petterson, wherein they demonstrated that the intestinal mucosa of a case was infective, it must be assumed that the virus may be discharged in the feces.

The marked susceptibility of laboratory animals to this virus brings us to another important factor in the etiology:

The Coincident Paralysis of Man and Domestic Animals.

Wherever infantile paralysis has existed in epidemic form, the occurrence of paralytic phenomena in domestic animals, either preceding or coincident with the invasion, has been remarked. Manning has collected observations under this head from nineteen epidemics, in which acute paralytic disease occurred in cats, dogs, horses, sheep, hogs or chickens. In one epidemic, reported by Carina, at San Paulo, Brazil, 100 horses and 4,000 cattle died with symptoms of rabies during the spread of poliomyelitis among human beings.

An outbreak of meningitis accompanied by paralysis caused the death of 24,000 horses in Nebraska in the fall of 1912. In most of the epidemics reported, chickens seem to have suffered equally with children and the sharing of animals in this infection seems as well authenticated as the prevalence of bubonic plague among rats, preceding the human invasion of the pest. If we examine, for example, the splendid report of the Massachusetts State Board of Health on the epidemic of 1910, we find that out of 186 families in which acute poliomyelitis occurred, 34 homes showed sickness, paralysis or death among the domestic animals. As only 110 of the families infected possessed domestic pets, it will be seen that in thirty per cent of the homes there was coincident paralysis in the stable or the kennel.

In the Minnesota and Wisconsin epidemics, Manning repeatedly noted paralysis in young horses, and the epidemic in San Joaquin county, California, was accompanied by a similar sickness among one and two year old colts.

Dogs are especially prone to this infection, the disease frequently appearing in these animals just before invasion of human beings. Wickman made this epidemiological observation in Sweden, and it has been confirmed in many outbreaks in this country, especially in Massachusetts, where May was able to report nine specific instances.

For a number of years it was insistently denied that rabbits were susceptible to the virus of infantile paralysis, "but it must now be accepted that young rabbits occasionally, but by no means generally, are subject to inoculation with the virus, at least after it has passed through a series of monkeys." (Marks.)

In a few epidemics concurrent paralysis has been noted in pigs, and in this connection the writer begs to recall the following personal case, published in "Colorado Medicine," November, 1911. A child, two years old, living with its parents and two sisters in a small settlement in Utah, was stricken with infantile paralysis, involving both legs, in October, 1910. There were no other cases in the neighborhood, and the father, a well equipped physician, now a member of this society, set about determining the origin if possible. The little patient subsisted largely on cow's milk purchased from a neighbor, and this was given without pasteurization. Following up this cue, the doctor found his neighbor's hogs were paralyzed, and concluded with reason that the virus was conveyed through the milk of cows attended by the same persons who cared for the infected hogs.

The Mode of Transmission.

For several years preceding the isolation of the specific micro-organism, it was believed that the virus of poliomyelitis was transmitted from the sick to the well through the medium of a blood-sucking insect. In 1912, Rosenau and Sheppard of Harvard successfully conveyed the disease from monkey to monkey by the stable fly (Stomoxys calcitrans). Anderson and Frost confirmed their findings, but investigators in the Rockefeller Institute and elsewhere have been unable to sustain their contention at any point.

Other biting insects were then incriminated, Manning maintaining that the common bedbug (Cimex lectularius) was the logical carrier of poliomyelitis. Howard and Clark, in 1912, were able to transmit the disease with bedbugs seven days after feeding on infected monkeys, the inoculated animals succumbing to the experiment. As the known carrier of Kala azar, and the probable carrier of leprosy, relapsing fever and occasionally bubonic plague, the bedbug must assume a rôle in epidemiology hitherto not accredited to it. To merit consideration as an obligatory factor in the transmission of poliomyelitis, Manning asserts, an insect must be (1) of worldwide distribution; (2) of perennial prevalence; (3) capable of wide migrations; (4) of urban as well as rural distribution; (5) it must show a marked increase in summer, and (6) it must prefer as food human blood.

All of these conditions are fulfilled by the lowly bedbug.

Direct Contact.

The human carrier, however, active or passive, is doubtless the most prolific source of contagion. Flexner and Lewis have shown the upper respiratory tract to be the point of ingress and egress of the specific virus. Regardless of the mode of infection, experimentally, the discharges of the nose and throat have proven infectious. It has also been shown (Flexner and Clark; Levaditi, Landsteiner) that the tonsils of fatal human cases contain the virus. The nasopharyngeal mucous membrane, therefore, must be regarded as both the point of attack and the point of escape, and patients should logically be subjected to the same rigid surveillance, so far as these discharges are concerned, as obtains in epidemic cerebro-spinal meningitis.

The mucous secretion may in turn infect clothing, bedding, toys, books, etc., or it may be carried mechanically by domestic pets and flies. It may be dried and infect the dust. Field workers have called attention to this latter possibility and attribute much of the infection in young children and domestic animals to the fact that these naturally inhale more dust.

The presence of the causative organism in healthy throats, during outbreaks of the disease, is the most stubborn factor to cope with in our efforts at extermination. As with diphtheria, epidemic meningitis, typhoid and cholera, the healthy carrier constitutes a greater menace by far than the known case. And it must be recognized that all efforts at restriction must necessarily be comparatively futile until we possess some practical means of identifying these agents.

Factors other than contact which have received consideration are the food and water supply, hygienic conditions, density of population, climate, season, age, sex, race and social state, but they are all merely incidental. In general one may say that infantile paralysis numbers between 80 and 90 per cent of its victims under 6 years of age, but no age is exempt. The male sex is affected more heavily than the female, in most epidemics in the proportion of about three to two. The disease prefers the temperate zone and is propagated most readily in the summer and autumn. It affects all races, and may be found under the best and worst hygienic environment. Finally, it is a disorder increasing in malignity, insidious in onset, affording a public health problem worthy of the brilliant names associated with its solution.

I have to acknowledge my indebtedness to Frauenthal and Manning; to the reports of the U. S. Hygienic Laboratories, and to the bulletins of the Rockefeller Institute, in the preparation of this paper.

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THE PATHOLOGY OF ACUTE ANTERIOR POLIOMYELITIS.*

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The pathological anatomy of poliomyelitis is represented by a rapidly developing diffuse inflammatory infiltration of the pia and cord, which is primarily perivascular in its distribution, and which therefore has a tendency to be most marked in the more vascular portions of the tisues involved, namely, the anterior horn cells. It is important to remember, however, that the inflammation is by no means confined to the anterior horn, but involves as above mentioned the pia and also the cauda, a large part of the brain proper, the intervertebral ganglia and peripheral nerves. The cells of the exudate consist for the most part of lymphocytes, but a few large mononuclear cells and polynuclear cells are also present.

The exudation is accompanied by degenerative changes in the parenchymatous cells, which however are most marked in small circumscribed areas varying in size from a few millimeters to several centimeters and which are apt to be confined in their extreme grades to the anterior horn cells of one lateral half of the cord. In these small areas the nerve elements including both cells and fibers ultimately disappear completely, so that the area involved can be recognized even by the naked eye by its smaller size as compared with the sound half of the cord at the same level. The exudate in other parts of the nervous system gradually disappears with more or less restoration of function in these parts. The permanent paralysis therefore is always much less extensive than is the paralysis at the height of the acute stage.

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The muscles which are permanently paralyzed undergo very rapid and extensive degeneration, so rapid indeed and so complete as to be unexplainable as the result of simple disuse. The wasting of the muscles may be partly masked by an overgrowth of fat and connective tissue. Ultimately deformities of various sorts may develop as the result of the action of the opposing muscles.

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CLINICAL ASPECTS AND EARLY TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS.*

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"At the meeting of the Pennsylvania State Medical Society in September, 1908, McKee[1] stated that the onus of future clinical study of this disease rested largely on the family physician. When a young child is suddenly seized in the warm months of the year with moderate fever, vomiting, constipation or diarrhea, pain in the back and legs, some stiffness of the spine, sweating and possibly some disturbance of the consciousness, infantile paralysis must be thought of."—Sever.[2]

According to Wickman,[3] there are eight distinct types of acute anterior poliomyelitis, viz.:

1. Spinal Type, which is the ordinary form, beginning with fever and sweating, restlessness and other signs of nervous irritability, headache, pain along the spine and in the extremities; and gastrointestinal disturbances, such as coated tongue, bad breath, vomiting, diarrhea or constipation. The fever usually corresponds to the severity of the attack and ranges from 100° to 104° or 105°. The sensorium depends upon the degree of toxemia present. Hyperesthesia is also present, especially in the muscles involved, along the spine and the back of the head and neck. In the severe cases there are usually meningitic symptoms present such as photophobia, retraction of the head, Kernig's sign, marked nervous irritability and possibly delirium. The symptoms in the spinal type usually persist from one to five days, or a week, depending on the severity of the attack. With the subsidence of the fever the effects of the paralysis become apparent in the inability of the patient to move one or more limbs or inability to sit up or move the head, or the head may be drawn to one side.

2. The Abortive Type. Here the onset is similar to that of the spinal type, usually, however, less severe in character, and there is no apparent residual paralysis. According to Rachford,[4] these cases may, however, show extreme weariness and muscular weakness. When occurring sporadically the abortive type would hardly be recognized as poliomyelitic; in fact, they are usually only recognized during the presence of an epidemic.

3. Progressive Paralysis.—Usually ascending in type and corresponding to cases of so-called Landry's paralysis. Beginning usually in the lower limbs, the paralysis extends to the muscles of the abdomen and back, chest, neck and arms, and frequently this type terminates fatally from respiratory failure due to involvement of the diaphragm and accessory muscles of respiration.

4. Bulbar or Pontine Type.—In which there is paralysis of the cranial nerves whose nuclei are in the medulla oblongata and pons cerebri, and usually associated

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with symptoms of polioencephalitis. In this type facial and oculomotor paralysis occurs, frequently accompanied by interference with deglutition, respiration and cardiac rhythm. "In severe cases obstinate constipation and retention of urine may occur, and death may result from splanchnic, cardiac or respiratory paralysis."—Rachford.

5. Acute Encephalitic Type.—In which the meningeal symptoms predominate, and spastic monoplegia or hemiplegia may result. These cases usually are not recognized in their early stages as being poliomyelitic without an early lumbar puncture.

6. Ataxic Type.—This is a rare form in which ataxia, usually of the cerebellar type, is the prominent symptom.

7. Meningitic Type.—Somewhat similar in appearance to the encephalitic type, and only recognized in the absence of an early lumbar puncture by the supervening flaccid paralysis.

8. Polyneuritic Type, in which the peripheral nerves are involved and the peripheral pain and tenderness are so marked that a diagnosis of rheumatism or multiple neuritis is frequently made.

After the subsidence of the acute stage of acute anterior poliomyelitis the paralysis remains. It is of the flaccid type, reaches its maximum during the ensuing few days, and is most apt to involve the muscles of one or both of the lower limbs, the upper limbs or the muscles of the back, neck and face.

The figures of Lovett and Lucas[5] show paralysis of one leg to be nearly four times as common as paralysis of both legs; and paralysis of an arm and leg of the same side to be more common than crossed paralysis. They also show that the internal muscles are affected more frequently than the external, and the anterior more often than the posterior. The quadriceps muscle was the one most commonly affected. The tibialis anticus and the anterior muscles of the lower leg came next in frequency, and the short toe flexors were the least likely of all to be affected. Paralysis of the upper arm was much more frequent than paralysis of the forearm, the deltoid apparently suffering most frequently. In general the paralysis was more often symmetrical than asymmetrical, when both sides were affected.—Sever.

During the next two or three weeks the paralytic symptoms begin to subside and there is a correspondingly increased ability on the part of the patient to move the affected parts.

By the end of a month the remaining paralysis represents the actual damage to the parts affected through the involvement of their motor cells in the anterior horn and upper parts of the nervous system, although much may still be accomplished by suitable treatment along the line of muscle training and stimulation of the muscular fibers still remaining.

The final effects are represented by the muscular atrophy, loss of subcutaneous fat, deformities due to overpowering of the paralyzed muscles by their antagonistic unparalyzed muscular groups, flaillike joints and occasionally shortening of a limb due to disturbance of the trophic supply to the bones themselves.

Diagnosis.

Acute anterior poliomyelitis may occur sporadically or as an epidemic. It is essentially a disease of the summer months, 50 per cent of the cases occurring in the dry, hot months of August and September, and 70 to 80 per cent between the 1st of June and the 1st of October.—Rachford.

While adults may be attacked, it is essentially a disease of childhood. According to McClanahan,[6] the extreme age limits in the Nebraska epidemic of 1909 were 4 months and 67 years. The period of greatest susceptibility is the second and third year of life, about 80 per cent of the cases occurring in the first three years.

Owing to the nature of its onset, it may very easily be mistaken in its earliest stages for the ordinary acute gastrointestinal disturbances of childhood, or for the onset of any of the other acute infections. Later the disease may be mistaken for some form of meningitis or a multiple neuritis.

An early lumbar puncture, that is, within the first three days, will often prove helpful in making a differential diagnosis, otherwise one may have to await the stage of residual paralysis before being able to make an exact diagnosis. During the first few days the cerebrospinal fluid is increased in quantity, is opalescent, shows an increase in the number of lymphocytes rather than the polymorphonuclear leucocytes, and of course the microorganisms of the other infectious forms of cerebrospinal meningitis are lacking.

Prognosis.

The physician should be very guarded in his prognosis, especially as to the residual paralysis, as one cannot always judge the probable degree of the paralysis from the severity of the onset. While in the sporadic form death is very rare, yet complete recovery without paralysis is very uncommon. In epidemics the mortality varies from 7 to 20 per cent, while about 25 per cent of the cases make complete recovery, usually in the course of the first six or eight weeks, according to Sever. Death usually occurs from respiratory paralysis, especially in the progressive and the bulbar or pontine types.

Prophylaxis.

Precautions should be taken as for any infectious or contagious disease. Preferably a rigid quarantine should be instituted for at least three weeks, and subsequent house disinfection resorted to. Other members of the family should not be permitted to go to school nor attend public gatherings, and as a protection to themselves should use a nasal and mouth douche or spray of 1 per cent solution of hydrogen peroxide, and be given urotropin in 2 to 6-grain doses, according to their age, three times a day, as recommended by Rachford. He also suggests that the discharges from the throat, nose, kidneys and gastrointestinal canal of the patient should be disposed of in such a manner that his surroundings may not be infected, and that the common house fly or other insects may not carry contagion to other parts of the house.

Treatment.

The treatment includes the following measures: Absolute rest in bed with protection of the sensitive parts by means of pillows, sandbags, splints or other retention apparatus, cold applications to the spine and the usual cleaning out of the gastrointestinal canal with calomel, followed by castor oil or salts. Liquid or semi-liquid diet, according to age. In the case of infants the usual formula should be weakened.

Cold spongings or packs to relieve excessive temperature. Colonic flushings with normal salt solution to clean out the lower bowel, act as an internal bath in helping to control high fever, and provide liquid for absorption to combat the toxemia. Bromides, alone or in combination with phenacetine or antipyrine to allay excessive restlessness or sleeplessness, and relieve pain. Ice bag to head or back of neck to relieve headache and other meningeal symptoms. Lumbar puncture may also prove of value for this purpose as well as diagnosis.

Urotropin in 2 to 10-grain doses several times a day, by mouth, per rectum or in emergency, by hypodermoclysis. Alcohol, preferably in the form of one of the preparations of predigested food, to combat the toxemia and sustain the patient; adrenalin, caffein and strychnine hypodermically if indicated by threatened collapse.

Personally the writer believes the patient should be kept in bed and as quiet as possible for at least a month. As soon as the condition is recognized or suspected the affected limbs are rubbed, not massaged, with goose oil and kept warm by being wrapped in cotton batting. The affected parts are kept in as normal a position as possible by means of some form of retention apparatus to relieve the strain on the affected muscles, and thereby combat the tendency to deformity. Not until the expiration of at least a month, or in any event until all tenderness has definitely ceased, is massage, electricity or muscle training instituted.

In this connection reference is made to the stand taken by Lovett in a recent article. Lovett[7] states that the period of spontaneous improvement in the amount of paralysis follows the subsidence of the fever and the definite establishment of the paralysis. What improvement is going to take place spontaneously will occur in the next few weeks. The best treatment during this period is to let the patient alone, except for preventing deformities and contractures. So long as the tenderness lasts it may be accepted as evidence of the existence of some degree of active myelitis. Under these conditions it seems unphysiological to stimulate by passive movements, massage or electricity, the peripheral parts connected with these centers. The tenderness may last two or three months after an attack, and a perfectly inactive treatment is hard to pursue when the family has heard of the wonders of massage and electricity. There is no danger that any of the joints will stiffen. When the tenderness has gone the time for active treatment has begun, and the sooner the patient is on his feet, resuming activity, the better.—Sever.

In conclusion, the writer wishes to emphasize the statement of McKee as to the duty of the family physician quoted at the beginning of this paper and also the suggestions of Rachford as to prophylaxis and quarantine.

The writer also wishes to acknowledge his indebtedness to the work of Rachford, and to the review of the recent literature on the subject by Sever, in the preparation of this paper.

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MODERN VIEWS ON BILIARY CALCULOSIS.*

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The subject of biliary calculosis is of equal interest to internist and surgeon. Surgical intervention is often the ultima ratio, owing to the serious injury produced by the stone. In recent years considerable attention has been given to the study of cholelithiasis.

Etiology and Pathogenesis.

The formation of gallstones in the human body occurs frequently; according to the statistics of pathologists in ten per cent. of all individuals. The majority of gallstone carriers are not gallstone sufferers, the quiescent calculus in the gallbladder produces no symptoms; the ductus cysticus is patent and the bile is clear. About five per cent. of gallstone carriers are gallstone sufferers; among these the majority are of the milder form, tending toward latency. Only twenty per cent. of patients with manifest cholelithiasis, or one per cent. of all carriers, require surgical intervention.

The manifest gallstones alone will be considered in this review, since the other ninety-five per cent. are clinically of no importance. Age and sex play an important etiological part. Gallstones are rarely found in children; with increasing years the number of gallstone carriers rises. Females predominate, especially those that have borne children, owing to the prevalence of conditions that favor stasis of bile, of which the principal ones are improper clothing and mode of living.

The causes of gallstone formation have recently received considerable study, in spite of the acceptance for many years of Naunyn's explanation that the fundamental cause consisted of stagnation plus infection.

Gallstones being composed of cholesterin, calcium, and pigment, it became desirable to ascertain the origin of the cholesterin. Naunyn considered it certain that the mucous membrane of the gallbladder produced the cholesterin and calcium of the calculus, owing to inflammatory changes in the bladder walls. Many authors oppose this view and regard cholesterin as a normal constituent of bile, kept in solution by the bile salts. Precipitation of cholesterin from bile may occur in various ways.

The rôle played by bacteria as a causative factor in the formation af gallstones has also received a good deal of attention. The precipitation of cholesterin from bile occurs more frequently and rapidly when bacteria are present, especially in the presence of bacillus typhosus and bacterium coli. Gilbert and Mignot succeeded in producing artificial gallstones in animals not only by the introduction of virulent, but also of attenuated cultures of bacterium coli.

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Aschoff and Bacmeister believe that the inflammatory type of gallstone is often preceded by a non-inflammatory one. They proved the radiated cholesterin stone to be produced by bile stasis without inflammation. The cholesterin-pigment-lime and the pigmented lime stones are founded on an inflammatory basis. These views are supported by the following observations: The morphology of the radiated cholesterin stone reveals a slow crystallization from bile, and the chemical constituents are identical with those formed from non-inflammatory bile. The components of the stone were separated from stagnant sterile bile by Bacmeister. The rapidity of the crystallization was increased by adding epithelial cells. Again, the pathologist often finds no evidence of inflammatory changes in extirpated gallbladders containing stones.

What are the etiological factors that cause bile stasis and indirectly gallstones? Of great significance are the mechanical causes, such as insufficient play of the diaphragm during respiration, flabby abdominal musculature resulting from many childbirths, tight lacing and ill-fitting corsets, lack of outdoor exercise and sedentary habits, all of which diminish the tone of the abdominal wall.

Gravidity is a most important predisposing cause in the production of biliary calculi, owing to the sluggish condition of the right hypochondrium, caused by insufficient use of the diaphragm during respiration. Cholelithiasis will often manifest itself soon after the puerperium, proving that the conditions during gravidity were favorable for gallstone formation. Whether the mechanical pressure of the pregnant uterus or the narrowing of the abdominal cavity have any important bearing has not as yet been definitely determined.

Hofbauer demonstrated histologically bile stasis with dilatation of the bile capillaries in the liver lobules of pregnant women, and he also believes this condition leads to gallstone formation.

What causes the transition from latent gallstone formation to symptoms of manifest gallstone? What produces the first attack of gallstone colic? In most instances the reason is to be found in the presence of bacteria in the bile, with inflammatory changes in the wall of the gallbladder and ductus cysticus. Therefore the two most significant antecedents for the initial attack of gallstones are (a) the period of gestation, and (b) acute infection in the body, especially of the gastro-intestinal tract. Trauma is found to act as an exciting cause in some instances; perhaps this may be explained by sudden change in the position of the latent stone, with impaction at the beginning of the ductus cysticus. Trauma may act directly, as when occurring over the liver region, or indirectly by sudden muscular strain, as in lifting a heavy load. In other cases, especially in the type of chronic recurrent biliary colic, the attacks may be induced by psychic or reflex stimuli, such as excitement or fear, or by dietary indiscretion. In this type of case stones are always present in the bile passages, so that with the slightest change in their position or in the vascular supply of the gallbladder, an attack of biliary colic may occur.

The relation of pregnancy and labor to gallstone can also be explained by diminished resistance to bacteria during gestation, with the possibility of hematogenic infection from the genital tract.

The association of cholelithiasis and typhoid fever is very well known. Quite frequently cholecystitis is a sequela of typhoid, the typhoid bacillus causing the inflammation. Here no stone exists. More frequently symptoms of cholelithiasis appear years after the attack of typhoid. Bacmeister demonstrated live typhoid bacilli in gallstones.

Pathology and Diagnosis of Cholelithiasis.

The clinical picture produced by gallstone is a most varied one, depending upon the seat of the stones, and the presence or absence of inflammatory changes in the wall of the gallbladder or in the bile passages. The size and number of stones do not play an important rôle in influencing the severity of the disease process. A large stone may exist for many years without causing any disturbance, and on the other hand a minute stone will often produce alarming symptoms when impacted in the ductus cysticus or in the papilla Vateri. Furthermore the presence of additional stones above the impacted one does not influence the course of the disease.

In considering the pathology and diagnosis of cholelithiasis it is best to follow the clinical types observed: (I) The attack of gallstone colic with sudden occlusion of the ductus choledochus and recurrent cholelithiasis; (II) Inflammation of the reservoir system (gallbladder and ductus cysticus); acute cholecystitis with its complications, perforation, peritonitis, diffuse cholangitis and chronic cholecystitis with hydrops of the gallbladder; (III) chronic choledochus occlusion, with or without icterus; and (IV) complications and sequelae of chronic cholelithiasis.

I. The attack of gallstone colic presents as a rule a distinct clinical picture. The pain starts suddenly and unexpectedly, usually at night, and is located over the upper part of the abdomen; in the typical attack severe sharp pain radiates towards the right shoulder and vertebral column. However, the subjective localization may vary. Vomiting, usually bile stained, accompanies the attack.

Objective examination reveals a retracted abdomen, the musculature is rigid, and the gallbladder region and right abdomen are exceedingly tender to touch. The temperature may or may not rise above normal, the pulse becomes rapid, and collapse often follows. Icterus may be absent, but usually appears a few hours after the onset and quickly disappears after the attack is over. The duration of the attack varies from a few hours to several days. As a general rule the pain vanishes as rapidly as it appears. After the colic the patient usually feels perfectly well.

The cause and nature of gallstone colic have not as yet been clearly explained. Formerly muscular spasm due to impaction of the stone was accepted as the immediate cause of the attack; nowadays, however, there is a tendency to attribute it to an inflammatory state of the mucosa. Aschoff and Bacmeister found no muscular fibres in the wall of the cystic duct. The impacted stone produces the attack by pressure upon the sensory nerves that are abundantly possessed by the cystic duct, this pressure being enhanced by inflammatory swelling of the mucosa.

The diagnosis of a typical attack of gallstone colic is generally easy, especially when accompanied by icterus of greater or less degree. In the differential diagnosis we should exclude the following: ulcus ventriculi and duodeni, angina pectoris, gastric crises of tabes dorsalis, renal colic, appendicitis, lead colic, and stone of the ductus pancreaticus. A correct diagnosis can almost invariably be attained by a carefully taken anamnesis and by the localization of a definite point of tenderness.

The attack may terminate in various ways. The stone may pass through the ductus cysticus and ductus choledochus to the papilla Vateri, and thence into the duodenum; it may recede into the gallbladder; or finally it may remain in the ductus choledochus.

Acute obstruction of the biliary passages is to be treated medically provided there are no severe inflammatory complications. If internal therapy fails to coax the stone into the duodenum, if the attacks increase in severity, if the degree of infection rises, then surgical intervention should be resorted to without delay. In recurrent cholelithiasis there are no marked inflammatory changes in the biliary system, the intervals between attacks vary in duration, the severity and duration of each attack may differ. During the interval the patient enjoys good health. These cases are most suitable for internal therapy and may successfully reach the desired latent period, though the stones do not always pass into the intestines.

Brief mention will be made of the Röntgen ray diagnosis of cholelithiasis. Beck was the first to demonstrate with the skiagram the presence of gallstone in the living subject. The two difficulties often encountered are (1) the location of the gallbladder behind the elongated lobe of the liver, which casts a shadow of marked density, and (2) a percentage of calcium in the stone insufficient to produce a distinct shadow.

II. We next consider the inflammatory changes of the biliary system, acute and chronic cholecystitis, infectious cholecystitis, and empyema of the gallbladder, resulting from gallstone obstruction of the cystic duct.

Of the organisms that play an important etiological rôle in acute cholecystitis, the bacterium coli is most frequent. In addition to this, typhoid, influenza and diphtheria bacilli and also staphylococci and streptococci may give rise to acute inflammation. The infection which leads to local manifestations in the gall bladder, by means of microbic infection, may be divided into classes, which, however, to a certain extent overlap: (1) General hemic infection; (2) direct spread of acute inflammation from the alimentary canal.

The pathological anatomy reveals, according to the severity of the infection. serous, purulent, hemorrhagic or gangrenous inflammation. The gall bladder is distended and its walls are tense and thinned, at times to such a degree that pressure necrosis and perforation follow. The cystic duct is often closed by inflammatory swelling, with or without a calculus.

Acute infectious cholecystitis presents a distinct clinical picture. In a well-marked case the earliest and most prominent symptoms are local pain and tenderness over the upper right quadrant of the abdomen. This is followed by more or less constitutional symptoms, such as vomiting of bile-stained fluid, elevated temperature, accelerated pulse and signs of collapse. The pear-shaped gall bladder may be felt; it moves with the liver in respiration and is exceedingly tender to pressure. Icterus is always absent at the beginning of acute infectious cholecystitis.

The further course of the disease varies. (1) The inflammatory process may tend to subside spontaneously, terminating in recovery; (2) there may be an extension of the inflammation to the peritoneum or to the deeper biliary ducts; in this case the prognosis is grave unless operative interference is invoked before more widespread infection has set in; (3) the disease may pass into chronic cholecystitis, with or without hydrops of the gall bladder.

III. Chronic occlusion of the common bile duct. Here we have jaundice appearing early as a most striking symptom. It varies in intensity. The stools, though nearly always acholic, yet occasionally show some brown coloration. The beer-brown urine contains bilirubin, at times urobilin and urobilinogen when the function of the liver cells is impaired. The symptoms accompanying jaundice are due partly to the presence of bile in the circulation, partly to a secondary toxemia produced by failure of the liver to perform its important function of arresting poisons and partly to the absence of bile from the alimentary canal. The symptoms encountered are, therefore, severe pain and tenderness over the right upper quandrant of the abdomen, chills and fever and an intense icterus with its accompanying manifestations—mental and physical depression, considerable impairment of appetite, loss of weight due to fat absorption, bradycardia and pruritus.

The dangers from prolonged obstruction of the common bile duct are (a) suppurative cholangitis, liver abscesses and sepsis; (b) perforation of the wall by the stone; (c) functional icterus superimposed on the mechanical icterus, as a result of injury to the liver parenchyma.

IV. The complications and sequelae that may be encountered during the course of chronic cholelithiasis are very numerous, involving not only the adjacent, but also the important distant organs.

An isolated hypertrophy of the right lobe of the liver is often associated with chronic cholelithiasis (Riedel's Lobe), and may assume such dimensions as to be mistaken for a dilated gall bladder, wandering kidney, or new growth.

Every severe attack of gall stone colic involves the serosa, causing pericholecystitis with resulting adhesions to adjacent structures, and thereby producing symptoms referable to the organ which is the seat of the adhesions.

With the existence of adhesions to neighboring organs, the inflammatory process may invade those organs, producing fistula. Such perforations most commonly involve the duodenum and colon. With the passage of a large stone into the lumen of the intestines, mechanical obstruction may be produced.

A complication of cholelithiasis that has scarcely received any attention is the involvement of the pancreas, either as an acute necrosis, chronic induration or cyst.

Special interest attaches to the association of gall stones with carcinoma of the gall bladder, of which calculi are generally thought to be the cause. Riedel considers this complication to be the most dangerous enemy of the gall stone sufferer, and lays considerable emphasis upon the early operative treatment of gall stones. Calculi are invariably found with carcinoma of the gall bladder and cystic duct.

An early diagnosis of gallbladder carcinoma is usually difficult, since it may exist for a long time without symptoms. When the growth reaches sufficient size, it may produce signs of mechanical obstruction of the bile ducts or the duodenum before attention is directed towards the possibility of a malignant tumor being present. By this time the carcinoma is already inoperable.

We may be guided to make an early diagnosis or perform an exploratory laparotomy under the following circumstances: (a) In individuals over thirty years of age who, after years of intermittent cholelithiasis, develop continual obstinate pain over the right upper quadrant of the abdomen. (b) When symptoms of gallstones suddenly appear in a person over thirty-five years of age, who has not previously had a similar complaint.

Carcinoma of the deeper biliary passages, the ductus hepaticus, the choledochus and the papilla Vateri, which are not as a rule associated with gall stones, shows early and intense icterus, due to obstruction of the flow of bile.

Therapy of Cholelithiasis.

The therapy of cholelithiasis may be considered under three subdivisions: Prophylaxis, and medical and surgical treatment.

Prophylaxis may be mechanical, dietetic or medicinal. The points to be borne in mind in mechanical prophylaxis, are the promotion of a normal flow of bile, and the prevention of stagnation in the biliary tract. Thus gentle exercise, gymnastics, outdoor sports, massage, and breathing exercises, are to be encouraged. The injurious factors of dress, enteroptosis, obesity and gravidity are to be obviated.

Albu lays special emphasis on the dietetic prophylaxis for those predisposed to gallstones. Since we know that bile is reflexly driven out of the gall bladder and ducts when food passes into the duodenum, meals at short intervals are more effective in preventing biliary stagnation than larger meals at longer intervals. Constipation and any tendency to indigestion, or gastro-intestinal fermentation or putrefaction, should be prevented by gentle purgatives.

Under the medical therapy of cholelithiasis we consider separately the treatment of the acute attack and of chronic recurrent cholelithiasis. Mayer contends that the object of treatment shall consist not in the expulsion of the stones but in the prevention of the formation of new stones by combating stasis and inflammation, and in bringing stones already present to rest, thus producing latency of the disease, which is in effect almost a recovery. Small stones often remain for years as harmless foreign bodies, as soon as the flow of the bile becomes normal and the inflammatory process ceases.

What the patient needs during the acute attack of gallstone is alleviation of pain, and for this purpose morphine still remains our sovereign remedy. Naunyn has had favorable results with a single dose of 30 to 45 grains of sodium salicylate. Other measures to be tried are hot drinks, baths and fomentations. Antipyrin may give relief at the beginning of the attack.

In treatment of chronic recurrent cholelithiasis the aim may be either the expulsion of the stones through the biliary system into the intestines, when the stones are small; or the production of a period of latency when the stones are large or when inflammation exists. Measures intended to lead to the expulsion of gallstones are uncertain in their action.

Mineral waters such as Carlsbad, Vichy, and Neuenahr have a most favorable influence in increasing the flow of bile, tend to remove infective catarrh and calculi, and may prevent the further formation of calculi.

Of the medicinal measures that have been recommended, the oil treatment may be of service. This consists in administering large quantities of olive oil or almond oil (180-250 g.). The unpleasant taste of the oil may be disguised by cognac, menthol, or yolk of egg. Other remedies that have been warmly recommended as cholagogues are sodium salicylate, salol, bile, podophyllin and calomel. Copious enemata of hot water or oil, and stomach washing, promote the flow of bile.

Surgical Interference in Cholelithiasis.

The absolute indications for operation are: (1) Failure of acute infectious cholecystitis to respond to a few days of medical treatment. To this may be added peritonitis due to perforation of the gallbladder or ducts; (2) Empyema and all suppurative processes of the gallbladder region or liver; (3) chronic choledochus obstruction, when medical treatment is without effect and when intermittent hepatic fever sets in; (4) Chronic relapsing cholecystitis when medical therapy fails; (5) Adhesions, when therapy fails; (6) Hydrops vesicae fellae, with persistent and severe irritative phenomena; (7) Acute intestinal obstruction in patients with a history of gallstones; (8) Suspected presence of carcinoma.

It is hoped that this review may serve to promote a keener study of the diagnosis of cholelithiasis, through which, by the combined efforts of internist and surgeon, much may be done to limit the incidence and results of this dreaded disease.

608 Metropolitan Building.

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DISCUSSION.

Oscar M. Shere, Denver: I simply wish to call attention to two or three points in the paper. The first one, that of disease of the gall bladder, is equally interesting to the surgeon and the internist, not only for the reason that both of them come in contact with these cases, but also as regards the study of the etiology of gall stone.

The different theories of Aschoff and Bacmeister which have been touched upon by the essayist are today looked at somewhat askance, because later investigators have demonstrated by experiment the existence in the gall bladder of the same bacteria as are usually found in the intestinal canal. These bacteria were injected intravenously and within thirteen minutes after the injection were demonstrated in the gall-bladder.

We have got to deal with an infection which, primarily, is the only cause of gall-bladder trouble. On the other hand, we are confronted with relation of the gall-bladder to the other organs of the entire alimentary tract. By this I mean, that given a chronic appendicitis or a chronic colitis or gastritis, or any catarrhal condition of the gastro-intestinal tract, any one of these may produce a cholelithiasis or a cholecystitis. I regard the gall-bladder as only a link in that great chain of the gastrointestinal tract and we may find disease of the gall-bladder secondary to attacks of appendicitis or gastritis. It is important to remember that when we try to isolate disease of the gall-bladder as a disease per se, we are not covering the entire field. I will not enter into the physiology of the gall-bladder. We used to be taught that the gall-bladder was the storehouse of bile. We now know its function to be different from that. It is not merely the storehouse but a chamber in which the bile is mixed with mucus, and the bile in the gall-bladder is ten times as concentrated as the bile which flows out of the hepatic duct into the duodenum. We know that bile must be mixed with mucus to serve the function for which it is intended. We know that disease of the gall-bladder will so change the composition of the mixture of the bile with mucus as to derange digestion in the intestinal tract, and, therefore, as far as treatment is concerned, I believe there is only one treatment in gall-bladder disease, and that is surgical treatment. The mortality in early operations upon the gall-bladder is almost nil. If you delay operation and wait for further confirmation of the various symptoms, and look for the x-ray and different other aids in the diagnosis, you will have a pathologic condition of the gall-bladder which will not be remedied by operation or drainage.

Poisonous Fly Destroyers.

The December issue of the Journal of the Michigan State Medical Society calls attention to the danger of using poisonous fly destroyers.

From July 1 to October 15, 1914, forty-five cases of poisoning of young children were reported in the press of a few states, and it is pointed out that the symptoms of arsenical poisoning and cholera infantum being very similar, there are possibly many more cases of the kind. This danger has already been recognized in South Africa, where the sale of certain arsenical fly destroyers has been restricted, more particularly those consisting of tin boxes which have a wick or wicks through which the poisoned water is drawn. The fact that sugar is added to draw the flies makes these boxes especially dangerous to young children. Another dangerous form in which arsenic is frequently used for the same purpose is blotting paper impregnated with arsenic, which is put in an open saucer with water and sugar.

News Notes

A bill introduced into the Legislature by the Colorado Association of Health Officers aims to abolish the State Board of Health as at present constituted, and to transfer the duties of the board to the Colorado Association of Health Officers, acting through its executive committee.

Beginning with the 1st of this month the Denver city commissioners decided to transfer to the County Hospital staff the ambulance and police surgeon work formerly administered from the City Hall. Drs. Miller E. Preston, C. B. James and J. C. McGillivray are thus removed from the position of police surgeons, although the first and last named were civil service appointees.

The arrangement by which the city of Denver recently turned over to the University of Colorado Medical College the work of the City Dispensary has been modified to the extent that the city will continue to conduct a tuberculosis department, and possibly also a children's clinic.

The report of the State Board of Health for the biennial period ending November 30, 1914, shows a marked improvement as regards the incidence of infectious diseases over the previous biennial period. There is, however, a marked increase in the number of scarlet fever cases, largely owing to the rather severe epidemic of 1913. It is humiliating to learn that Colorado is likely to lead the Union in the death rate from homicide.

Plans for the proposed new Children's Hospital in Denver (by Architect Maurice B. Biscoe) are now under consideration by the building committee, composed of members of the staff and of the lady board of managers.

At its annual meeting on January 5 the Denver County Medical Society, after listening to the address of the retiring president, Dr. Carroll E. Edson, elected the following officers for 1915: President, Dr. W. W. Grant; vice president, Dr. Oliver Lyons; secretary, Dr. H. R. Stilwill; treasurer, Dr. S. B. Childs, re-elected; new member of the board of trustees, Dr. Melville Black; new member of the board of censors, Dr. R. W. Arndt.

At the meeting of the Western Surgical Association in Denver, on the 18th and 19th of December, Dr. Wetherill read a paper entitled, "A Plea for Higher Hospital Efficiency and Standardization." The paper dealt with the necessity for a "get-together" movement on the part of the hospitals, in order to bring about greater economy in management, the standardization of statistics and mortality records, and regulation of hospital practice in the interest of better surgery and better surgeons.. An appeal to the Carnegie Foundation to do for the hospitals what has been done for the medical schools was endorsed by the Association, and a committee, consisting of Dr. Wetherill as chairman, Dr. James Moore of Minneapolis, and Dr. Charles Mayo of Rochester, was appointed to confer with similar committees from other societies, to bring about this end.

The Denver health department has issued a condensed summary of the work of the department during 1914. Only eight deaths occurred in a total of 336 cases of diphtheria. The figures as regards other serious contagious diseases follow: scarlet fever, 535 cases, 25 deaths; smallpox 151 cases, 1 death; typhoid fever, 142 cases, 18 deaths; infantile paralysis, 5 cases, 3 deaths; cerebrospinal meningitis, 16 deaths.

The Garfield County Medical Society, after a few years of somewhat precarious existence, has recently been reorganized under a new charter. The December meeting was held at the home of Dr. W. R. Tubbs of Carbondale. The paper of the evening was by Dr. Frank of Glenwood Springs.

Dr. Charles A. Powers' numerous friends are greatly pleased to learn that he has made an excellent recovery from his recent very severe illness.

Dr. Edward Eckerson died at his home on December 12. He had been confined to his bed ever since a second stroke of paralysis on September 25, 1914. Dr. Eckerson had practiced in Denver since 1890. He was born in Medine, N. Y., in 1853, and graduated from Buffalo University in 1876. Two months before his death he made a list of his pallbearers—Drs. Seebass, Arneill, Charles, Harvey, Yaeger and Buchtel.

Dr. W. E. Driscoll of Oak Creek had a narrow escape from serious injury when, on December 8, an automobile in which he was a passenger turned end over end down a twenty-five-foot cliff.

Dr. N. J. Hyatt of Gunnison was severely bruised in an automobile spill on December 3.

Drs. Stover, R. T. Ramsay and Healy are mentioned among recent Denver visitors to the balmy winter climate of Florida.

Dr. V. J. Jernigan from Obion, Tenn., has settled in Longmont.

Dr. J. T. Rushin, who comes from Montgomery, Ala., has located in Monte Vista on account of his health.

In a suit brought by Dr. W. H. Campbell of Pueblo against a patient upon whom he had operated for appendicitis, the jury fixed the charges at $75. The doctor, whose bill amounted to $265, has appealed the case.

Suit against Dr. H. H. Martin of Denver for $15,000 on account of two inches of shortening of a fractured thigh in a nine year old girl, was lost by the plaintiff.

The Denver City Health Department is said to have received no less than fifteen reports of prescriptions for cocaine to which the name of Dr. C. W. Hall, the chief resident physician at the County Hospital, had been forged.

Dr. R. G. Hersom, Cheraw, recently fractured his right wrist while cranking his automobile.

Dr. J. R. Gaines, Las Animas, who was recently tried for alleged malpractice, was acquitted.

Dr. F. M. White, La Junta, has gone to Illinois for a two months' vacation at his old home.

Dr. W. E. Stemen took a very commendable part in the work of rescuing other tenants of the Buckingham hotel, Denver, in which he and his wife reside, from an alarming fire which broke out in the hotel in the early morning of December 26th.

Dr. Walter Hotchkiss was married on December 29th to Miss Marjorie L. Simmons of Hutchinson, Kansas. Dr. Hotchkiss has begun the practice of medicine with Dr. Moore, at Brighton.

Dr. Gasper Hegner was lately called to Cincinnati on account of the illness of his mother.

Dr. Fred W. Bancroft, formerly of Denver, has received an important appointment at Columbia University.

The annual meeting and dinner of the St. Joseph's hospital staff will be held at the Denver Athletic Club on Saturday, January 16th.

Dr. Horace Heath, formerly of Denver, and now of San Francisco, has been visiting in Denver.

Dr. Robert Levy was in New York last week attending the meeting of the Council of American Laryngological, Rhinological, and Otological Society.

On New Year's morning the usual reception, tendered to the profession by Drs. Black, Coover, Freeman, Hall, Levy, and Lyman, was held on the fourth floor of the Metropolitan building in Denver. The concluding paragraph of the invitations read as follows:

"As the passage of the new law regarding the possession, use and sale of certain of the drugs used in our treatment may interfere with its application after this year, we urge upon you the paramount necessity of coming early upon this occasion with the definite purpose of establishing an immunity which shall, at the least, protect you throughout the coming year."

A superb egg-nog furnished by the Shaw Drug Company and concocted by Mr. Heffelfinger was the piece de resistance. Several boxes of cigars and cigarettes were opened, most notable, as to their names, being the ones called "The Skunk-cabbage" and "The Hair-Mattress." The smoke, however, seemed to be of the usual tobacco flavor despite the names.

Over the punch bowl was hung a placard—"The great specific paralyzer, the medicine that put the Old Nick in tonic." On the walls were hung various other placards, some of which we quote:

"Diplopia scientifically treated."—Dr. Melville Black.

"For guides and ambulances see Dr. Coover."

"For that dark brown taste," see Dr. Levy.

"No cure no pay."

"The cure is not complete unless you can see two of these spots."

"Patients with dilated stomachs or gastroenterostomies will be charged extra."

"Special auto to Keeley Institute will leave at 12, noon."

"The company will not be responsible for loss of equilibrium unless deposited with Dr. Hall."

"Fool your wife—the new breath perfume—may be obtained from Dr. Levy.

Upon notification by Mayor Perkins of the coming of the City Commissioners, a "Sawdust Trail" was laid out for their entrance. Several hundred members of the profession, with a good admixture of attorneys, druggists and public men in general were entertained during the forenoon. These receptions have added materially to the general reputation of the Denver medical profession for sociability and cordiality.

The El Paso county commissioners have placed the medical work of the county in the hands of the following medical board: Dr. L. H. McKinnie, surgery; Dr. L. W. Bortree and Dr. A. H. Peters, general medicine; Dr. C. O. Giese, tuberculosis; Dr. A. C. Magruder, eye, ear, nose and throat, and Dr. F. T. Stevens, psychiatry.

At an open meeting of the El Paso County Medical Society on January 13th, Dr. Horace G. Wetherill delivered his popular stereopticon lecture on "English Highways and Byways from a Motor Car." The lecture was greatly enjoyed by a goodly number of members and their wives and friends.

A somewhat elaborate New Year's reception was also given at Colorado Springs by the physicians who have offices in the Burns building. The doctors in charge of the reception were Magruder, Bortree, James, Watt, Mullen, Mayhew, Friedmann, and Loomis.

Pueblo Notes.

The Pueblo County Medical Society held its Annual Banquet in the newly furnished hall of the Society on Thursday evening, December 17, 1914. The affair was informal, a fine turkey dinner being served on a long table occupying the center of the hall. There were about forty-five present, including four or five guests. The music was supplied by Mr. Trigg with his new Edison disc machine. Dr. E. A. Elder, as toast-master, brought forth many amusing anecdotes and interesting speeches. The whole evening proved most enjoyable.

Dr. H. A. Lord has moved his offices to the Thatcher building.

Dr. C. F. Taylor and his son Dr. R. R. Taylor, who was recently elected coroner, have taken offices together in the Pope block.

Dr. F. E. Wallace, who was recently elected State Representative for Pueblo, is in Denver attending the General Assembly.

Dr. J. H. Powers formerly of Winfield, Kansas has located in Pueblo.

Dr. Lloyd Bronson of Streator, Ill., has been spending the holidays with his brother, Dr. W. T. Bronson.

Dr. F. J. Pierce, formerly of the General Hospital at Devil's Lake, North Dakota, has associated himself with Dr. W. Harlan Baker for the practice of medicine and surgery. They have their offices in the Pope block.

The following officers of the Pueblo County Medical Society were elected January 5th for the ensuing year: President, Dr. C. F. Taylor; Secretary, Dr. J. H. Woodbridge; Delegate, Dr. A. T. King; Censor, Dr. J. A. Black; Librarian, Dr. D. E. Hoag.

Constituent Societies

EL PASO COUNTY MEDICAL SOCIETY.

The annual meeting of the **El Paso County Medical Society** was held at the Antlers hotel, December 9th, 1914, at 8:15 p. m., with Dr. C. O. Giese in the chair and thirty-five members present. The Committee on Municipal Hospital for Contagious Diseases reported that there had been several meetings with the Mayor as well as with the Council as a whole; that there was considerable interest shown in the matter and that the Council had included a small amount in the budget for next year as a beginning for the hospital. It is hoped by the Committee, now that there is a beginning, that charitably-inclined persons will help the cause with donations. It was moved, seconded and carried that a committee of three be appointed to keep the matter of a municipal hospital before the people by writing signed articles for the daily papers and speaking of the matter at every opportunity. The President appointed Drs. Webb, McConnell and Magruder.

Dr. Bortree reported the transactions of the House of Delegates at the annual meeting of the State Society held at Boulder. There was little of interest to the local societies except that Dr. Black recommended that the local secretaries should be elected for three years as it was very necessary to have some one who was familiar with the work. Upon the motion of Dr. F. L. Dennis, Chap. II., Sec. 1, of the By-Laws of the Society was amended by inserting after the words "for one year" the following: "Except the secretary, who shall hold office for three years."

The annual reports of the Secretary and Treasurer were read and approved.

Drs. J. H. Brown, Stevens and Boyd were appointed a committee to order the periodicals for the coming year.

The following officers were elected: President, Dr. J. F. McConnell; Vice President, Dr. L. H. McKinnie; Secretary, Dr. G. B. Gilmore; Treasurer, Dr. A. C. H. Friedmann; Delegate to State Meeting, Dr. C. O. Giese; first alternate, Dr. F. L. Dennis; second alternate, Dr. J. J. Mahoney.

Dr. H. Trossbach reported the case of a patient who had been afflicted with taenia saginata (tape worm). The patient was treated with pelletierine, and evacuated the entire worm, which was demonstrated at the meeting.

G. B. GILMORE, Secretary.

OTERO COUNTY MEDICAL SOCIETY.

A regular meeting of **Otero County Medical Society** was held at the Santa Fé Hospital in La Junta, Colo., Tuesday, December 8, 1914.

Meeting called to order at 8:15 p. m. by the president, Dr. R. M. Pollock.

The following members answered to the roll call: Drs. Pollock, Brunk, A. L. Stubbs, Jessie Stubbs, Lawson, Johnston and Moore.

Election of officers was taken up and resulted as follows: President, Dr. A. S. Brunk, La Junta; vice president, Dr. F. W. Maier, Rocky Ford; secretary-treasurer, Dr. R. S. Johnston, La Junta; delegate, Dr. R. M. Pollock, Rocky Ford, with power to appoint an alternate. President Pollock appointed Drs. J. F. Kearns and R. S. Johnston as an auditing committee to audit book of past years.

Dr. E. Gard Edwards read a paper entitled "The Urinary Tract a Neglected Field." His paper gave much good advice in regard to means of diagnosis in this field, especially the use of X-ray and cystoscope. Discussion was general.

Dr. A. S. Brunk read a paper entitled "Artificial Pneumothorax as a Therapeutic Means." The paper was very interesting and the doctor demonstrated an apparatus used for introducing air into the pleural cavity.

In response to an invitation from the matron of La Junta City Hospital, the Society adjourned to meet at the hospital for the next regular meeting.

W. M. MOORE, Secretary.

WELD COUNTY MEDICAL SOCIETY.

The regular meeting of the **Weld County Medical Society** was held in the city hall, Greeley, on December 3, 1914. The meeting was called to order by the president at 7:30 p. m.

Dr. Mead moved a vote of thanks to Dr. J. W. Leban, who had recently presented valuable books to the Society. Carried.

Dr. Thompson gave notice that at the next meeting of the Society he would present a motion which would provide for a change in the by-laws of the Society with regard to the time of service of the secretary, that is, for a term of three years instead of one year, as at present.

The election of officers for the ensuing year resulted as follows: E. W. Knowles, president; W. E. Thompson, vice president; J. W. Lehan, secretary; J. W. Hughes, delegate to State Society.

Dr. Broman presented to the Society a translation of a German clinical lecture on "Burns," which was not only interesting from a scientific standpoint, but proved his intimate knowledge of the language.

Dr. Ringle by request gave a resumé of his lecture on "Colds." The doctor's talk was thoroughly appreciated by the members.

CHARLES B. DYDE, Secretary.

PUEBLO COUNTY MEDICAL SOCIETY.

The Pueblo County Medical Society met in regular session, December 15, 1914. Dr. MacLean was elected President, pro. tem., until Dr. Singer arrived.

The Entertainment Committee reported that the Annual Banquet would be held in the Society hall on Thursday evening and that a fine turkey dinner would be served.

Dr. H. M. Thompson presented the paper of the evening on "Eye Injuries." He tock up the various kinds of injuries and their results and dealt at length on the treatment of these various injuries. The paper was an excellent one, and was freely discussed.

Dr. Wallace and Dr. Pattee presented several clinical cases of eye injuries, demonstrating the nature of injuries made by blows and foreign bodies.

The committee appointed to revise the fee bill submitted their written report. This report was discussed for a time, after which the Society resolved itself into a committee of the whole and took various items into consideration. The Secretary was instructed to have sufficient copies of this report made and to send a copy to each member so that the matter could be taken up as an amendment to the By-laws.

Dr. Epler moved that the committee appointed last May to advise with the Health Department of the City be revived. This motion was carried.

J. H. WOODBRIDGE, Secretary.

Book Reviews

The Intervertebral Foramen. An Atlas and Histologic Description of an Intervertebral Foramen and Its Adjacent Parts; by Harold Swanberg, member American Association for the Advancement of Science; with an introductory note by Prof. Harris E. Santee. Illustrated by 16 full-page plates, none of which have ever before appeared in print. Chicago Scientific Publishing Company, Chicago, Ill.

Within the past few years numerous "Schools of Practice" have sprung into being, based on the theory that most, if not all, diseases and distressing symptoms are due to pressure on nerves, and that the usual point of pressure is where the nerves emerge from the spinal column, due to a slipping or malposition of one or more spinal vertebrae.

We hear this theory advanced, and wonderful cures attributed to the reposition of misplaced vertebrae, etc. The layman is not able to contradict the theory, by reason of his lack of anatomical knowledge. He simply accepts the theory as correct, even though the practitioners of the various schools and advocates of the theory are palpably unscientific and for the most part uneducated.

This monograph of Mr. Harold Swanberg is extremely valuable in showing just what the anatomical relations of the spinal nerves are at the intervertebral foramen. These relations are shown by actual sections, which prove beyond question whether compression of the nerves at this point is likely to occur.

It is interesting to note that the size of the foramen is about three times as great as the size of the nerve. It seems from this study that it would be impossible for the nerve to be pinched by the bone at its exit from the spinal column.

The work is original and highly instructive. The sixteen plates illustrating the monograph are excellent in detail and execution, and the book work is exceptionally good. A study of the plates and accompanying descriptions will suffice to show just what basis exists for the oft repeated assertion that pressure on nerves at their exit from the spinal column is a frequent cause of trouble.

C. P.

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Editorial Comment

THE 1915 MEETING.

THE UNDERSIGNED COMMITTEE HAS BEGUN CONSTRUCTION OF THE PROGRAM FOR THE MEETING OF THE STATE MEDICAL SOCIETY NEXT OCTOBER. MEMBERS WHO DESIRE TO CONTRIBUTE PAPERS WILL PLEASE SIGNIFY THEIR INTENTIONS AND FORWARD TO THE CHAIRMAN WITHOUT DELAY THE TITLES OF THEIR ESSAYS.

S. FOSDICK JONES, 1405 Glenarm Place, Denver, Chairman.

HENRY SEWALL, Majestic Building, Denver.

CRUM EPLER, Pope Block, Pueblo.

THE MEDICAL LICENSURE BILL.

In 1881 the first act controlling licensure to practice the healing art in Colorado was passed. It provided for the creation of a Board of Medical Examiners to consist of nine medical men representing the three schools of medicine, and further for an examination that should be without prejudice or partiality to any school and which should not include materia medica and therapeutics. The applicant was to be examined by number so that his identity might not be known to the examiner, and no questions were to be asked on treatment, the answers to which might disclose the school of practice of the applicant. All applicants to practice the healing art were required to appear before the Board, and no one of good moral character could be refused an examination, whether a graduate in medicine or a blacksmith.

These general principles with one exception have held from that time to the present; the exception being that in 1905 the Legislature provided that "Nothing in this act shall be construed to prohibit . . . the practice of osteopathy when not prescribing medicine, or administering drugs," This has been known as the osteopathic exemption clause, and by virtue of it the osteopath has maintained an office and treated the sick. Under decision of the Supreme Court he is permitted to employ the term "Doctor" if used in connection with the word "osteopath." Thus the form "Dr. Smith, Osteopath," becomes legal.

There is no legal definition of osteopathy beyond the provision that its practitioners may not prescribe medicine or administer drugs. Hence, while the early osteopaths have advanced their standards, and raised their educational requirements both for entrance and college work, there has come into existence, both from within and without the State, a body of individuals without any educational standards, and in many instances with positively no preparation. These have opened offices with such signs as "Dr. Blank, Osteopath," "Dr. Jones, Chiropractor," or "Dr. Hoffman, Napropath," and when arrested for practicing medicine without a license, they make the claim that they are practicing osteopathy, with the result that no conviction follows.

At every meeting of the Legislature there has been a determined effort to strike out the exemption clause, but to no avail. During this period strenuous efforts by the osteopaths to establish a separate osteopathic board of examiners have likewise met with defeat.

A critical study of the situation will show that while on the one hand the legislators wished to maintain a single board, on the other hand they were not willing that that board should deprive men and women of rights which had already been granted them by the State. To be more specific, since the osteopath had been granted the right to practice medicine by the exemption clause, and had been secured in this right for a period of from two to ten years, our legislators were not willing that he should be required to pass an examination by the examining board, and perhaps thereby lose the right previously acquired. That he had not submitted to the test required of all others before, during, and after his coming to the State, did not weigh against the rights obtained by virtue of his exemption. This is the position of the average lay member of the Legislature at the present time. To meet this condition of affairs, and at the same time to establish a single standard of licensure, which shall apply in the future to all who wish to practice the healing art house bill No. 178, by Crist of Clear Creek county and Thompson of Denver, and senate bill No. 106, by Elliot of Colorado Springs, have been introduced. These bills are different copies of the same and will here be referred to as one.

The bill provides that "any person who shall have been lawfully engaged in the practice of the healing art in the State of Colorado for not less than six months immediately prior to the date upon which this act takes effect, and is a graduate from an institution chartered to teach the healing art by the state wherein it was located, which, in case the practitioner graduated therefrom prior to January 1, 1908, required such practitioner to be in actual attendance for two years of nine months each and not less than two thousand hours of instruction in order to graduate, and which school, in case the practitioner graduated therefrom subsequent to January 1, 1908, required the practitioner to be in actual attendance for three years of nine months each and not less than three thousand hours of instruction in order to graduate, shall be granted a license to practice medicine in the State of Colorado by the State Board of Medical Examiners without examination as to his skill or knowledge." All who cannot show these minimum credentials will be required to take an examination.

The above requirements are those of the osteopathic schools recognized by the national organization, the graduates of which may legitimately claim exemption under the present law. It is for the legislators to determine whether, in the interest of public health, those of lower educational standards should be exempt. The subjects for examination are those fundamental to the recognition of disease, no questions being asked on methods of treatment; to the end that no one be permitted to practice any physical method of healing who cannot diagnose the ordinary diseases, including the contagious and infectious. Christian Scientists are not included because they do not pretend to diagnose disease nor to treat by physical or mechanical means. Though the standard described is not a high one from the medical standpoint, it certainly goes farther in the interest of the public than the present law with its exemption clause, or than any which could be established under a multiplication of boards.

The bill further provides for licensure by examination of midwives and chiropodists, making the practice as either by unlicensed persons the practice of medicine, and subject to penalty.

Besides this bill, three have been introduced for the purpose of establishing separate boards of examiners; one house bill No. 187, senate bill No. 155, for the organized osteopaths; one house bill No. 19, senate bill No. 14, for chiropractors; and another house bill No. 186, senate bill No. 149, for the nondescript osteopaths and all others who have crept into the State under the most liberal construction of the exemption clause.

The chiropractors are either osteopaths, as they claim when taken into court, in which case they should meet the educational requirements fixed by organized osteopathy, or they are criminals practicing medicine against the laws of the State; in neither case deserving any clemency at the hands of the State or its representatives. The nondescript osteopath deserves even less consideration.

The meritorious individual in these very imperfect organizations may always show his knowledge by an impartial examination. Needless to say, the men of low standards are much in evidence as lobbyists. It behooves others to use their influence with their representatives.

D. A. S.

VICE ABATEMENT.

Two years ago Colorado lost the opportunity to join those progressive states that were legislating against vice. The Tait bill, which failed to pass, was modelled after the Iowa Injunction and Abatement Law which had freed Iowa from tenderloin subjection.

In the past few years, by legislation and by popular vote, many states have adopted similar measures to combat the social evil.

Last fall the people of California ratified the action of the legislature of 1913 in passing a red-light abatement act. The vicious interests were anxious to keep California "open" for the Fair, but enlightened public sentiment gave the referred measure a good majority.

Recently Congress passed a similar law by which the District of Columbia can protect its property from such illegal uses.

Kansas, Wisconsin, South Dakota, Utah, Washington and Oregon have each an abatement and injunction law. Reports from these states tell of enforcement and most striking results.

In our own Senate this year we have the Robinson bill which is a close pattern of the California law. This bill was referred to the Committee on State Affairs and Public Lands and has already been ordered printed.

Briefly, this bill provides that every building used for immoral purposes is a nuisance and upon evidence shall have an injunction isued against it, closing the place for one year or order of court, the furniture, fixtures, etc., being sold to meet fees and costs. If the owner of such property pays all costs and gives surety that the nuisance will be immediately abated, the court has jurisdiction to release the property, which shall be under surveillance.

For violation of the injunction there is provided a fine of not less than $200 nor more than $1,000, or imprisonment from one to six months, or both fine and imprisonment.

This method of making the owner of property directly responsible for the uses to which it is put is rapidly becoming popular, and it is hoped that Colorado will follow the trend of progressive states and pass the Robinson bill. The medical men in House and Senate ought to be most active in its behalf, for they, above all, know the extent of the physical ills which invariably accompany the "open" town and official winking at vice.

M. E. V. F.

LENGTH OF LIFE AMONG THE INSURED.

In 1909 forty-three of the leading life insurance companies of the United States and Canada decided to collate their experiences covering different classes of the insured. The sifting and tabulation of some 2,000,000 lives, insured during the preceding twenty-five years, were turned over to the Actuarial Society of America and to the Association of Life Insurance Medical Directors. After three and a half years of arduous labor, a committee appointed by the above-named organizations has presented the results of its studies in five large volumes—a monumental work of vast value to the companies concerned, to the medical profession and to the general public.

A few of the many clear deductions from this report were given in a recent address, ("Can Insurance Experience Be Applied to Lengthen Life?") before the Association of Life Insurance Presidents, in New York, by Mr. Arthur Hunter, the chairman of the above committee.

In working out occupational hazards, some ninety-seven occupations were taken up.

Among these, locomotive engineers show an excess mortality of sixty per cent—an excess which was rapidly lowered in 1914 by a special campaign of education instituted by the leading roads of this country. Miners, underground and surface, have a high mortality; the former, over twice the normal. This excess is due in part to accidents and in part to pneumonia and tuberculosis.

Saloonkeepers and hotel proprietors had an excess mortality of seventy per cent; workers in breweries of thirty-three per cent; wholesale liquor dealers, of twenty per cent; distillery proprietors, a normal mortality—the only normal risk among the fourteen subdivisions of the trades connected with the manufacture or sale of alcohol. Among men who formerly had taken alcohol occasionally to excess, but whose habits before insurance were considered satisfactory, the excess mortality was fifty per cent. Men using more than two glasses of beer or one of whisky daily had a mortality fifty per cent greater than those whose use of liquor was at or below these limits. Total abstainers had a mortality of about one-half of that existing among men who used alcohol to the extent of at least two glasses of whiskey a day.

Among those who had had pleurisy within five years prior to insurance, deaths from pulmonary tuberculosis were three times the normal number. This agrees with the observations recorded by many clinicians in the last few decades. The report reveals that among young men who, when insured, were at least twenty-five pounds under average weight, and who had a parent, brother or sister dead of tuberculosis, five deaths out of every ten were from tuberculosis. Even without a family record of tuberculosis, the death rate among the light weight insured was high from this disease. Overweight subjects, with a tuberculous history, showed but little increase of mortality. Aside from its relation to tuberculosis, marked overweight decreases the life expectancy by four years, through an increased tendency to diabetes, Bright's, heart disease and apoplexy.

The above deductions indicate the general trend of the investigation; and the complete report furnishes a storehouse of most valuable facts for those members of the profession who are engaged in life insurance examinations. C. B. V.

A NATIONAL MENACE REMOVED.

The splendid results which may be achieved through complete and harmonious co-operation between federal, state and municipal authorities have been well demonstrated in the conquest of bubonic plague in California.

Beginning with the epidemic in San Francisco early in 1900, this disease developed insidiously, partly through unidentified human cases, but more commonly through rats and ground squirrels, until by 1912 an area of approximately thirteen thousand square miles, comprising nine counties of central California was infected. Since the year last mentioned, the most intensive measures of plague eradication probably ever conducted have been carried out under the direction of the United States Public Health Service. The results are outlined by Surgeon John D. Long, (Public Health Reports, Nov. 20, 1914), whose statement is a modest summary of a giant work in sanitation.

The extent of squirrel infestation in the infected area prior to July, 1913, amounted in some districts to as many as one hundred and forty per acre. Operations leading to their destruction, chiefly through shooting and trapping, have diminished this squirrel population to such a degree that a hunter must now cover many acres to obtain a single specimen. On the ranches where plague infection was found, absolute extermination has been effected, so that it may safely be announced that all discoverable infection has been eradicated from the state, and that danger of further spread has been removed.

Nor are the benefits of this crusade confined to the preservation of health and life. The economic results have been far beyond the expectations of even those immediately connected with the work. If the annual losses through destruction of crops, young trees and vines, were computed and added to those resulting from breaks in irrigation ditches made by the burrows of ground squirrels, the expense incurred in the destruction of over twenty million of these animals would seem insignificant.

California has atoned for her selfish concealment of the pest fifteen years ago.

J. W. A.

THE FEDERAL ANTINARCOTIC LAW.

From March 1, 1915, under the Harrison antinarcotic law, it will be unlawful for physicians to have in their possession any opium or coca derivatives, or to prescribe or administer such drugs to their patients, unless they have registered with the collector of internal revenue of their district. An annual tax of $1 will be levied for such registration, the apportionment from March 1st to July 1st (that is for the remainder of the current fiscal year) being 34 cents. Prescriptions for such drugs must bear the registered number of the physician, and, subject to certain exceptions, records of such prescriptions will have to be kept for two years subject to inspection. It will be illegal for druggists to dispense prescriptions written by physicians who have not complied with the law.

The collector of internal revenue in Denver states that he will shortly circularize the physicians as to their responsibilities under the act.

Relief of Lumbago by Manipulation and Active Movement.

Haig (British Medical Journal, September 26, 1914), after discussing the unsatisfactory state of our knowledge as to the etiology and pathology of this affection and noting the good results obtained by osteopaths and "bone-setters," decided to try the manipulation and active movements. He has the patient sit erect with his back to the physician, and then deeply kneads the lumbar muscles on each side of the spinous processes. A painful area is usually found somewhere in the median line or to one side of it. He next fixes the part of the vertebral column below this painful region by firm pressure of the thumbs on each side of the spine and then makes the patient perform strenuous movement in every direction, including rotation. The result is cure of the attack at a single sitting in almost every instance.

O. M. G.

The cost of wrapping baker's bread, says the Journal of the A. M. A., is estimated at 4 or 5 per cent. But the reduction in weight of wrapped loaves varies from 7.5 to 14 per cent. The consumer can be expected to bear at least half the cost of wrapping, but he should not be compelled to pay all of it, plus a profit.

Samuel Augustus Fisk, A M., M.D.

Note.—At the meeting of the Denver County Medical Society on the 2nd of February, time was devoted to commemorating the life of Samuel A. Fisk, an early President of the Colorado State Medical Society. The remarks then made by several members of the Denver Society, former friends of Dr. Fisk, are here placed on record.

By Dr. W. W. Grant, President of the Medical Society of the City and County of Denver:

I trust you will pardon a few minutes' delay in taking up the scientific program of the evening, that we may pay suitable tribute to the memory of Dr. Samuel A. Fisk, who died in Boston, Massachusetts, on January 18, of broncho-pneumonia. He was a distinguished member of this Society during his residence in this city. When I came to Denver in 1890 he was the first to greet me, and it was through his influence that I was actively interested in the Library Association, and became a life member of it. That Association owed more to Dr. Fisk than to any other one man, and the resultant benefits of the splendid library of the City and County Medical Society are appreciated by all. He fostered the medical schools of the state, and of all the educational systems and humanitarian work of the state he was a conspicuous and devoted advocate. We honor ourselves in honoring his name and his achievements. Dr. Edson, Dr. Rogers and Dr. Sewall will present suitable recognition of his character and work.

By Dr. Carroll E. Edson:

Samuel Augustus Fisk, M.D., an honorary and formerly active member of this society, died in Boston, January 18, 1915.

He was born in Northampton, Mass., February 9, 1856, the son of Robert and Narcissa Perry (Whittemore) Fisk. His father died when he was a child; and he was brought up by his uncle, Samuel Augustus Fisk, M.D. —Yale 1844—a well-known and honored physician of Northampton, for whom he had been named.

He graduated A.B. from Yale in the class of 1877, and M.D. from Harvard in 1880. He had just entered his service as house officer in the Massachusetts General Hospital, when an attack of tuberculous pneumonia obliged him to come to Colorado for his health. He spent the years of 1881 and 1882 at Poncha Springs, joining the State Medical Society in 1882. In 1883 he moved to Denver, and he became a member of this Society in 1884.

He was President of the State Medical Society in 1888, and, always interested in the advancement of the medical interests of the City and State, was active in bringing the meeting of the American Medical Association to Denver in 1898. It is really from this meeting that the new era of the Association dates. At that meeting, besides the hard work on the finance committee of arrangements, Dr. Fisk was Chairman of the Medical Section of the Association.

He was a member of the American climatological Association from 1887, and its President in 1902. He was a member of the Association of American Physicians from 1890. He was a member from its foundation of the National Association for the Study and Prevention of Tuberculosis, and a member of the Sixth International Congress of Tuberculosis.

In Denver he took, from the first, an active and useful part in medical education; and was made Professor of Medicine in the Medical School of the University of Denver in 1884. He was Secretary of the School until 1895, when he was appointed Dean, in which office he served until 1899.

He was one of the founders and most enthusiastic workers for the Medical Library, which now belongs to this Society.

He was an early and devoted member of the staff of St. Luke's Hospital and served for many years on the staff of the County Hospital. He was a member of the first board of "The Home."

He received the degree of A.M. from Yale in 1884.

In 1899 a nervous disorder, which had shown its forecoming for some time, necessitated his relinquishing active practice in Denver, and, in 1905, he moved to Brimfield, Mass., where he made his home until this winter. He kept during a long and trying invalidism an unbroken interest in medical affairs, and in all matters of public welfare of his community, as well as an affectionate regard for Denver and Colorado.

He was married in 1907 to Miss Clara Crumb of Chaumont, N. Y., who survives him.

Dr. Fisk's interest was naturally, from the first of his residence in Colorado, turned to climatology; and in that field, and the study and care of tuberculosis, his chief work was done; and his reputation so made was wide and honored. His work and writings played a large and influential part in establishing the repute and recognition of Colorado as a health resort throughout the world.

His practice was soon large; and of few physicians could it be so truly said that every patient became his friend; for to all he was from the first a friend, and to the end faithful.

Keenly interested and skilled in his medical art, Dr. Fisk had a wide outlook on life, and his culture was finished and broad; but the characteristic which above all marked his life was his generous and warm-hearted care for his friends and fellow-men. Genial and even-tempered under conditions of personal discomfort most trying to bear, he was eager to lift the burden from those in ill-health and to inspire hope in those who had to start life anew. He was a big-hearted man, whose name should long be a shining honor to this Society.

By Dr. Henry Sewall:

Samuel Augustus Fisk has been professionally dead for ten years, though only two weeks ago did he enter into rest. Which one of us after that time could seem so alive to those of this day?

Fisk's was a mind of unusual intelligence cultivated in academic fields at Yale and in medicine at Harvard. Still Fisk in no wise belonged to the class of so-called scientific physicians. His education gave an appreciation of science but it antedated the days of special laboratory training. His medical attitude was the expression of a rich, warm personality. His place was one of eminence in the contemporary community and at his acme his name would always have been included among the three or four at the head of our medical profession. But it is not in this field of competition that his memory is cherished. He was a living exponent of altruism; the helping of others was a passion with him.

When it was found that through physical disability he must finally withdraw from the stress of active practice, a number of us, at the suggestion of J. M. Foster, came together at the University Club to say to Fisk the friendly word. The fifteen men or more gathered round the board each had in his mind a singular and original thought and when he rose to speak it, lo! it was the same as all the rest—how Fisk had helped **him** when he first settled in Denver.

As for me, I well remember the first fee earned, or, I should say, acquired, in this town; it was for an autopsy on a case of Fisk's; he thought it "sweet and decorous" to use the dead to fertilize the living.

Every public enterprise for the good of the people found in Fisk an enthusiastic supporter. He spent much energy in furtherance of the purchase of the Carter collection of animals that now enriches the museum at City Park. He was a power in the preparation for and conduct of important gatherings, as the American Public Health Association and the American Medical Association, which have been held in Denver. Well on to half of the volumes owned by the library of this Society came through the personal generosity or social influence of Fisk. He gave to the library in its early days several hundred dollars outright, and, through his influence with leading officials of the Burlington railroad, special transportation rates were obtained which made it possible to import, in the late '90s, a generous gift from the Boston Medical Library, of some six tons of printed matter, including much valuable material.

A mere outline of Dr. Fisk's professional affiliations would include most that we regard as highest in our cult. He was the chief medical adviser at the inception of the Oakes Home in this city. He was chairman of the section on medicine at the Denver meeting of the A. M. A. He was President of the American Climatological Association in 1902. He was elected a member of the Association of American Physicians in 1890, retiring to the emeritus list in 1902. No Colorado physician, with the possible exception of the late Charles Denison, more consistently or with greater power expounded the life-sustaining properties of the Colorado climate, especially in the treatment of tuberculosis. It was the development of this disease in himself that first brought Fisk to Denver, and to its treatment he devoted the best energies of his life. The history of medical education in Denver, of our State and County Society, of our Medical Library, would be widely deficient were Fisk's name eliminated from the records.

Finally his viewpoint of medical culture was well illustrated by his gift to the Denver College of Medicine on his retirement as Dean. He presented two fine engravings to hang upon the walls—one representing the masterpiece of normal masculine and the other of feminine physical perfection—the Apollo Belvedere and the Venus of Milo. He said the student of disease should never lose sight of the ideal of health and beauty.

If Fisk's life-content could be condensed in one descriptive label I fancy he would wish it to read

"Heart in Medicine."

By Dr. Edmund J. A. Rogers:

At the Annual Meeting of the Colorado State Medical Society in 1883, Dr. S. A. Fisk of Poncha Springs was elected Secretary of the Society, and my first recollection of him is seeing him seated at the Secretary's desk at that meeting, genially distributing courtesy to all.

It was my first State Society meeting, and to me, his attitude brought such a pleasing impression that I congratulated myself upon having found such an agreeable environment.

He soon moved to Denver and began his practice here, and the more intimately I came to know him the more that first agreeable impression advanced to a genuine admiration for those broad, generous, loyal and always gentle and lovable characteristics which attracted and endeared him to every one who came to know him well.

He had come to Colorado fresh from a laurelled graduation at both Yale and Harvard, and I cannot imagine a more graceful and pleasing combination than that presented in his personality of the polished scholarship which characterizes the graduates of one of these institutions, with the public-spirited good-fellowship which gives university impress to those educated at the other.

Colorado indeed reaped the benefit from the unfortunate semi-invalidism which had compelled him to give up his promising career in his native New England and seek the benefits of the sunshine and bracing air of the Rocky Mountains. To him the change soon brought greatly improved health, and he amply repaid his adopted state for its benefits by the generous and brilliant way in which he familiarized the whole world with its climatic attractions.

As I came to know Fisk better, a warm friendship developed between us, which remains one of the happiest and most helpful memories of my life. Circumstances drew us more and more together, and we became very closely associated in almost every phase of our professional and social lives. And the more one came to know his true intimate self, the more one appreciated the true worth of his character. The love and respect of all with whom he became associated in his work and in his social and professional life, constantly increased. Nothing shows this confidence and respect more than the fact that in 1888, six years after he had joined the State Medical Society, and when only 32, he was elected its President.

We entered the Denver Medical College at the same time and worked there together as long as he remained in Denver. Honors and advancements came rapidly and abundantly to him, but the old medical college soon became, and thereafter remained, first in his affection and interest, and upon it he bestowed his greatest energy. I believe his happiest day was that upon which he became its dean, and a more devoted and useful officer no institution ever possessed. He soon came to have a feeling of personal incorporation into it which made it seem his main life work, and, indeed, an integral part of himself; and he therefore naturally felt an antagonism to every move which threatened the individuality and independence of the school.

For its welfare, as well as for the welfare of all that he loved—and he loved all that the circumstances of life brought into close relationship with him—he gave himself freely. No energy of thought or action seemed great to him if it were expended for his friends, his patients or the organizations in which he became interested, and no financial or selfish motive ever deterred or influenced him in the expenditure of this energy.

Such a man could not but be loved, respected and admired by all who knew him well.

I have left to my confreres all reference to his great scientific work and literary attainments. What I wish to impress upon you is a realization of his great, loyal, generous heart and his unselfish goodfellowship.

I am well aware that the majority of this Society never knew the man of whom I speak. Many of you knew a man who followed in his place, but this new man was not the true Fisk so well known and so beloved by us of the more ancient brotherhood. For us, so deeply was he set in our affections that no change could efface the reality of the dear old fellow that I have tried to depict.

After a gradually increasing disintegration, progressing through several years, Dr. Fisk finally gave up his work in Denver about fifteen years ago, and since then he has been a stranger among us. It is now nearly five years since I last saw him. I then spent a day with him upon his farm in Massachusetts. The joy of that day was in the happy recollections which it revived. I could see in him, as he then was, vividly pictured the Fisk I had long before known and still loved so well, but the reality was fading, and the end that has come so slowly must have come as a liberation. I have heard nothing of the details of these final days.

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Few remain of those I met at that, my first State Medical Society meeting. One by one they have dropped from our ranks as they finished their well-done day's work. As the gaps occur in our ranks they are more than filled, and our numbers constantly multiply. But of all that have come and gone, no one has been to me a greater influence for good; no one has been more helpful; no one has brought more light, more joy, more satisfaction into my life's work than he of whom I speak.

Dr. Fisk's course was large and brilliant, but it was comparatively short. While he was himself he stood foremost among us all, and we who knew him in his happier days will still hold him there. It is thus that I now and shall ever remember him. The shadows that eclipsed him have all dispersed. I see him and know him again the genuine, unselfish, kindly gentleman that we all loved. His friendship has added something to my life that I can never lose.

Original Articles

ANEMIA, THE DOMINANT CONSTITUTIONAL DISORDER OF COLORADO*

HENRY SEWALL, M. D., DENVER.

No word in medicine brings up a better focussed picture of a clinical state than does anemia. Yet when we seek to define exactly what is or may be conveyed by the term we become involved in a maze of biochemical conceptions, and almost at every turn must stumble over the obstructions of unknown conditions.

Etymologically the word signifies a diminution in the amount of blood, such as might be brought about by general bleeding, or in a given area by obstructing the local arterial flow. But the clinical sign of pallor of the skin and mucous membranes without evidence of diminution of blood volume has established a conception of anemia which limits its meaning, altogether too strictly, to a lowered content of the coloring matter of the blood. For practical purposes we may restrict our attention to the percentage of hemoglobin and the number of red blood corpuscles per cubic millimeter, while remembering that possibly the vital symptoms that we are trying to correct may be due chiefly to associated conditions, such as abnormal relations of proteids and salts in the blood plasma, or excess or deficiency in the oxidizing ferments, without which vital action would cease at once. Although Rosin and Jellinek[1] have shown that hemoglobin is not the only coloring matter of the blood, and that it does not contain all the iron found in that medium, both laboratory and clinical workers agree in standardizing the oxygenating capacity of the blood according to the number of red blood corpuscles and the percentage of hemoglobin. While the "blood count" is one of the most comforting of hematological data in our estimate of a condition of anemia, competent observers, as Ehrlich and Lazarus,[2] do not hesitate to ascribe to the quantitative measurement of the hemoglobin a truer index of the oxygen carrying power of the blood. For the practical clinician such a conclusion greatly enhances his opportunities for exact diagnosis. Counting the blood corpuscles is a complicated procedure. By the average practitioner it must be relegated to the trained clinical microscopist. Without meaning offense to this most important member of our community, I must confess my suspicion that blood counts for the most part very roughly approximate the truth. Gross errors of technique are easily involved, and finer ones, as pointed out in the recent work of Prof. Burger[3] and his colleagues, are difficult to avoid.

The conclusion has been forced upon me that the clinical estimation and correction of anemia, while acknowledged everywhere to be important functions of the medical practitioner, are for us, living at an altitude of one to two miles above sea level, duties of peculiarly urgent importance.

In my own work it became necessary to have at command some easy, uncomplicated and reliable method for the estimation of hemoglobin. Only one procedure sufficiently met the first two conditions, namely, the familiar method of Tallquist. Tallquist devised a booklet with leaves of fine, bibulous paper and a scale of colors designed to represent in quality and intensity the appearance of a drop of blood which has been absorbed by a fragment from a leaf of the book. The color scale represents proportions of hemoglobin varying from 10 to 100 per cent. For years I had been accustomed to casually employ this method, with the constant reminder of its extraordinary inaccuracy. Tallquist's original article has not been accessible to me, but in none of all the writers who quote him have I found an adequate description for the proper manner of employing his tests. A proper technique is indispensable, but also a fine sense of color perception must be brought to bear. When the test paper is applied to a drop of blood this quickly spreads out over a larger or smaller area, and within a few seconds loses its moisture-gloss. If the diffused drop is now compared with the color scale the reading will be much too high. As the blood film gradually dries its color becomes progressively lighter, but usually the color quality remains true. Finally, the color film dries so thoroughly that the paper crackles when bent. But now it is observed that the color-quality has changed: it becomes brown, presumably from decomposition of the hemoglobin. No satisfactory comparison between the test of the blood film and the color scale can be made when this change has transpired. In certain pathological bloods the browning takes place while the paper is still somewhat moist, but ordinarily it does not occur until rather complete desiccation supervenes. The most correct estimation of the hemoglobin per cent can be obtained just before the blood film becomes so dry that the paper crackles and just before the color becomes markedly brown. In this climate from eight to ten minutes are usually required for the paper to dry to the proper degree. In practice it is not usually difficult to get constant results.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

In a given case a blood film compared with the color scale soon after losing its gloss may give a reading of 80 per cent of hemoglobin; the tint may gradually lighten until in eight minutes the estimation lies between 50 per cent and 55 per cent. The colors should be compared at a window illuminated by fairly bright, diffuse skylight. In some cases a truer estimate can apparently be made by viewing the colors at an oblique angle. I am much indebted to Dr. Helen F. Craig, pathologist at the Denver County Hospital, for checking my hemoglobin estimations in ten hospital cases by use of the Dare instrument, in which a fluid blood film of definite thickness is viewed by transmitted candle light in a dark room, and compared with an empirical color scale. It will be seen that the greatest difference in the readings amounted to 8 per cent. The tendency is to make too high an estimate with the Tallquist method.

Fairly Clear Day.

Tallquist.	Difference.	Dare.
(1) 55	0	55
(2) 72	+3	75
(3) 75	0	75

Dark Day.

Tallquist.	Difference.	Dare.
(1) 82	+8	90
(2) 55	—5	50
(3) 52	—6	46

Bright Day.

Tallquist.	Difference.	Dare.
(1) 45	—5	40
(2) 75	+3	78
(3) 75	—6	69
(4) 68	—8	60

It may therefore be said that, properly used, the Tallquist method presents a very serviceable degree of accuracy.

The amount of circulating hemoglobin at any time depends, broadly speaking, upon the ratio of its destruction to its formation. Fluctuations in the rate of blood loss depend upon varied pathological conditions which are outside the purpose of this essay.

It is the variation in the rate of blood formation that concerns us. In the embryo the erythrocytes and hemoglobin arise in the liver and spleen, as well as in the red bone marrow; in the adult the latter tissue seems to be the sole source of their production. Yet it is apparently possible for the adult spleen to re-acquire its embryonic hematopoietic function, as is said to be illustrated in the human after certain severe anemias, and in the rabbit after the injection of saponin. There must be in the body some definite coördinating mechanism through which the red bone marrow automatically responds to the demands of the living tissues for oxygen carriers to supply their needs. Indeed, the rate of blood formation can be experimentally accelerated at any time by the simple measure of bleeding an animal. The point of the present essay rests upon the confident hypothesis that the physiological response of the bone marrow to the stimuli which should lead to blood production is often insufficient. The physiological result of such failure we recognize as anemia.

Anemia probably reduces the working efficiency and the reserve power of every living tissue. Under ordinary conditions its onset is so insidious that the body more or less accommodates itself to the lowered oxygen supply without the production of symptoms which point to the faulty mechanism. It is only when the hematopoietic disturbance is profound or acute that clinical symptoms are apt to arise.

For us who live a mile or more above sea level the functional capacity of the bone marrow is of more than usual importance, and inability on the part of this tissue to increase its rate of blood production is likely to be attended by pronounced physiological disorders. A large majority of observers agree that in normal man and other mammals removal from sea level to places at a greater elevation results in stimulation of the blood-forming organs, leading to an increase in the number of the red blood corpuscles and in the amount of hemoglobin. These increments are permanent, are roughly parallel to the degree of elevation, they begin almost immediately and probably do not reach their acme until after a lapse of several weeks at the new elevation. On returning to lower levels there is a corresponding loss of corpuscles and hemoglobin.

As compiled by Ehrlich and Lazarus[2], the red blood count, assuming the normal number of corpuscles at sea level to be 5,000,000 per c. mm., increases 800,000 at an elevation of 1,840 feet, 2,000,000 at 5,900 feet and 3,000,000 at something over 14,000 feet. Therefore the normal blood count at Colorado Springs should be over 7,000,000, and on Pike's Peak nearly 8,000,000. The rise in the hemoglobin per cent is proportionate. Nevertheless, the conditions determining blood changes with altitude are evidently far from simple. Thus, as quoted by Barcroft, Moravitz and Masing, and Cohnheim and his collaborators found no sudden increase in red blood corpuscles or hemoglobin at moderate elevations (up to 10,000 feet) above sea level.

Prof. Bürker, assisted by four collaborators, has recently submitted the hematological influence of altitude to a critical study at an elevation of between 5,000 and 6,000 feet. These observers agree in the universal opinion that altitude has a stimulating effect on the blood-forming organs, but they maintain that the increase of corpuscles and hemoglobin is much less than has usually been believed. They found, at the elevation named, in four persons studied, an increase of 4 per cent to 11.5 per cent in the red blood count, and of 7.8 per cent to 10.7 per cent in the amount of hemoglobin. This would give a mean blood count at Colorado Springs of considerably less than six millions.

Barcroft notes that Douglas, in a study of his own blood made at 7,000 feet, obtained only negative evidence as to the effect of altitude, while later, on Pike's Peak, at more than 14,000 feet elevation, there was a notable increase of corpuscles and hemoglobin. Professor Zuntz[5] and his distinguished collaborators, working on Monte Rosa, elevation 14,960 feet, seemed to prove unmistakably that active acceleration of the blood-forming function is induced by sufficient rise above sea level, and less than two years ago a well-equipped party of trained observers[6], consisting of Haldane and Douglas of Oxford, Yandell Henderson of Yale and Schneider of Colorado College gave the final proof that blood formation is increased under the influence of lowered atmospheric pressure. They found that the percentage of hemoglobin increased for several weeks after ascent of the peak, and "varied in various acclimatised persons from 115 to 154 per cent on the scale of the Gowers-Haldane hemoglobinometer. The number of red corpuscles increased parallel with the hemoglobin."

In the monumental work of these observers it is pointed out that "all the symptoms due to diminished barometric pressure depend directly or indirectly upon diminution of arterial oxygen pressure and consequent aeration of the arterial blood and deficient saturation of its hemoglobin with oxygen." According to Haldane and his co-workers, although the transfer of oxygen to the blood in the alveoli of the lungs is ordinarily accomplished by the physical process of diffusion, when the oxygen tension in the air of the alveoli falls below that of the blood, as occurs at critical elevations, then there is a physiological response on the part of the body by which active secretion of oxygen by the lungs into the blood occurs. This power of oxygen secretion is acquired during the process of acclimatisation. According to Barcroft "oxygen is taken up nearly half as fast again in the lung of the acclimatised person."

Barcroft's explanation of the discordant results of different and even of the same observers working at various altitudes seems to me very satisfactory; it is, in very free paraphrase, essentially as follows: The moving equilibrium of the body is so adjusted that, under usual conditions, the physiological balance is largely maintained by purely physical forces with little or no expenditure of vital energy. There is a certain range of greater or less breadth through which external factors may increase or decrease and be met by an automatic adjustment of physical processes in the body, preserving the vital balance without calling upon the living tissues to modify their metabolism. But beyond a certain point, specific for each organism, change in external conditions necessitates radical alteration in protoplasmic metabolism in order to prevent general disaster. Thus, a noteworthy diminution in the oxygen tension of the air may be compensated for by accelerated diffusion in the lungs and similar physical processes in the interior.

In this case the oxygen needs of the body are amply satisfied without the more costly and profound changes involved in the production of new corpuscles and hemoglobin. That is, there has been no true physiological stimulus and there is consequently no physiological response. As the oxygen tension is continuously lowered the range of accommodation of the physical processes is surpassed and the blood forming organs must increase their output and the alveolar epithelium must assist or replace diffusion by active secretion of oxygen.

Now it follows from the foregoing that any increase in corpuscles or hemoglobin associated with elevation above sea level is the result of a physiological response to external stimulus (the lowered oxygen tension according to Haldane) and one person may normally respond to such a stimulus much sooner than another. But, and this is the very cause of our existence as physicians, a considerable group of persons may be expected to fail to normally respond to the blood forming stimulus. The result must be the pathological symptoms of anemia.

Having thus cleared our decks, as it were, we may proceed to deduce certain conclusions. If there be a more or less regular and moderate increase in production of red blood corpuscles and hemoglobin with elevation above sea level this must be for some useful purpose to the body. The function of these blood elements being, so far as we know, solely to carry oxygen to the tissues, it seems at first sight paradoxical that nature should provide more blood carriers when the burden diminishes; that the corpuscles and hemoglobin vary inversely with the proportion of oxygen in the air. A little consideration explains the apparent anomaly. We know that at sea level the red blood corpuscles only incompletely load up with oxygen in their journey through the lungs. Their hemoglobin rapidly lays hold of ready oxygen up to a certain proportion of its capacity, but not to complete saturation.

Under ordinary circumstances the blood leaves the lungs with its hemoglobin about 85 per cent saturated. When the circulation is hurried the blood corpuscles have less time to load up in the lung capillaries; then the degree of hemoglobin saturation is probably proportionately less. There is left, therefore, in the alveoli of the lungs an amount of oxygen wholly unutilized. If new corpuscles are added this residue of oxygen is drawn upon and carried to the tissues. Furthermore, I venture the opinion that the hemoglobin is not only carrier of oxygen but a reserve storehouse for this vital element. Sudden muscular exertion makes immediate demand for increased oxygen supply to the tissues; in the absence of such a ready stock the most active lung ventilation may be unable to meet this demand in time to supply the tissues. Such inadequacy of the respiration is more pronounced the higher the elevation above sea level. We see, therefore, in the increased corpuscle and hemoglobin content of the blood at high elevations a teleological argument for an oxygen storage function of the hemoglobin.

Granting the general proposition that the normal blood-forming organs are stimulated to increased activity by ascent above sea level, it is obvious that clinical determinations of corpuscles and hemoglobin that might be considered as normal at sea level indicate when obtained at Denver or Colorado Springs a degree of anemia that might well be the origin of pathological symptoms.

Moreover, it cannot be disputed that the increased blood formation associated with elevation above the sea indicates a coordination of physiological response to environment whose balance requires the nice adjustment of many forces.

Now, the very essence of constitutional disease is the failure of physiological response on the part of living tissues to the external stimuli which are their normal excitants. Far from being strange, it is to be expected that in a certain proportion—a large proportion—of people the physiological response of the blood-forming tissues to the stimulus of altitude should be slow or imperfect. The clinical result is relative anemia. When so fundamental a function as that of hematopoiesis is interfered with, every vital activity is involved and wheel within wheel of vicious reactions begins to revolve throughout the body.

These considerations were not laid down in advance, but grew up out of the writer's concrete clinical experiences. His attention was first definitely directed to the subject several years ago when a long-time patient whose mental habit was to repress complaints, began to manifest symptoms of general malaise and subjective discomfort. A course of treatment directed by first one idea and then another proved ineffectual. Finally, although the patient's general appearance gave no intimation of anemia, her hemoglobin was estimated and found to show about 75 per cent of the normal at sea level. In spite of this slight degree of anemia iron was exhibited and the favorable response was rapid and satisfactory. Since that time I have been prone to take account of the condition of people as to the hemoglobin content of the blood as a routine in the estimation of their physiological working capital.

Let it be borne in mind that the same grade of anemia which is well borne by one person because of some unmeasurable internal adjustment, in another may provoke disastrous functional disorders. It is the physician's duty to determine in a given case whether a hemoglobin estimate of 70 per cent to 85 per cent is indeed a sign of physiological starvation, as it is surely, specifically at our altitudes, a sign of anatomical poverty.

The physician who systematically investigates the oxygen-carrying power of the blood is apt to see in anemia the basis of a wide range of vital incapacities. The physiological resources of reaction, however, usually enable the subject of the condition to carry on the ordinary duties of life unsuspected of inadequacy. But when contingencies arise which call upon the reserve powers of the body to preserve the integrity of the cellular community, disastrous inefficiency depends, I fancy very often, on an anemia that might have been therapeutically corrected. For example, v. Noorden points out that in chlorosis the tendency to thrombus formation is a marked characteristic of the blood dyscrasia. (Diseases of the Blood, in Nothnagel's System.)

In our ignorance of the vital metabolism concerned in all anemias it seems to me that such a fact should lead to the prophylactic treatment of anemia in many diverse conditions in which thrombosis plays an important part. Thus, when an apparently healthy woman, a week or so after parturition, suddenly succumbs to the horrors of pulmonary embolism, it is open to suspicion that the fatal accident was but the outcome of thrombosis in outlying districts from the uterus, from which clots have washed into the venous current.

Possibly a hematonic might have prevented this abnormal extension of a conservative process. The serious complication of thrombosis in typhoid fever, and in many other conditions which occur to the mind, may possibly to a large extent depend upon an anemic state of the blood which we are prone to consider a necessary part of the original disorder and neglect systematically.

Finally, the therapeutic devices for the prevention and cure of anemia are familiar to all.

Experience shows that nature's prime demand for normal hematopoiesis is a hygienic environment and mode of life, including fresh air, sunlight, exercise, good food, a good conscience and cheerful thoughts. Such considerations dare not be supplanted by the materia medica. The drugs we employ to correct anemia are essentially two, iron and arsenic, and possibly manganese. Iron we know to be an essential constituent of hemoglobin. Arsenic seems probably, as pointed out in the recent paper by C. Aubertin[7], to be a specific stimulus for the red bone marrow. Aubertin thinks that these remedies should not be given together, but in alternate courses. For some years the authority of Bunge led the medical profession (and the manufacturing chemists) to be blind to clinical facts and to act on the belief that iron was only available to the body when exhibited in organic combination. But since Abderhalden and others have pointed out that all organic compounds are disintegrated before absorption by the alimentary canal and that iron is probably absorbed only in an ionized, that is in an essentially elementary condition, we have returned to believe in the deductions long ago made by our fathers.

Iron may be given in various forms by the mouth or in certain solutions by intramuscular injection.

When I remember the teachings of Abderhalden and others on the elaborate preparation which practically all ingesta must undergo in order that their absorption may not swamp the community of living cells in poisons; when I hold in mind the physiological turmoil which parenteral introduction of any foreign material into the body at once sets up, I confess to a wonder that nature tolerates our clinical methods. Yet facts justify practice and there can be wisdom in empiricism. We have learned from the French the efficiency as a hematonic of the organic preparation of arsenic known as cacodylate of soda when administered into the muscle through a hypodermic needle. Great good, I am sure, can come from this practice, yet it behooves us to remember that arsenic is a poison and its organotropic effects which work for ill may in careless hands far outweigh the good it may do in the direction towards which it is aimed. Thus, Jonathan Hutchinson[8] gives it as his experience that arsenic in all its forms constitutes a specific stimulus to the growth of malignant tumors. Some unfortunate experiences of my own lead me to credit the statement.

To briefly summarize my points:

Summary.

1. The percentage of hemoglobin in the blood is of profound importance in all states. It is an indicator of the condition of the commissary department of the body.

2. From the fact that the hemoglobin percentage normally rises with elevation above sea level it follows that residents in the higher altitudes must exhibit a proportionately larger hemoglobin content to properly functionate.

3. The physiological response to the stimulus of lowered barometric pressure is very apt to be deficient and hence it is to be expected that many functional disorders are originated or accelerated at moderate elevations above sea level owing to the existence of comparatively mild grades of anemia.

434 Majestic Building.

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DISCUSSION.

George A. Moleen, Denver: At the last meeting of this society, which was held in Colorado Springs, I made mention of the fact of my views tending towards anemia as a basis of a great many conditions for which altitude was held responsible. I feel, therefore, somewhat in the position of one who has cherished a subject, who has had it up his sleeve, as it were, and then has it elaborated upon in a much more able manner than he would have been able to present it himself. I have constantly observed what I believed to be the reiteration of my own views in the recovery of cases which did not appear to be anemic.

The estimations of hemoglobin have been unsatisfactory as Dr. Sewall has said. The Tallquist scale has been particularly unsatisfactory where it has been used in a diffused light. I think the readings of the Tallquist scale are lower if one reads them in direct sunlight; then they approach the estimations by means of the Dare instrument more closely. The normal increase in the blood count, as has been said, is a result of the requirements of high altitude, and as Bürker puts it, a deficiency is the result of the individual not being able to accommodate himself to those requirements, for as Barcroft has said, the oxygen pressure itself determines the capacity of hemoglobin for saturation by oxygen.

A word with reference to the treatment of cases of so-called relative anemia who are suffering from the effects either as I have observed them particularly on the nervous system, or generally. They do not get well when treated with this or that iron preparation of which the market is so full. One patient will improve with one form of iron and another fails absolutely to respond, and some even fail in response to all forms. This, it would seem, is due to the inability of the individual to assimilate iron, which is coincident with the inability of the individual to accommodate himself in oxygen carrying capacity and hemoglobin to the demands made upon him.

Edward W. Lazell, Denver: I have been especially interested in the paper read by Dr. Sewall. The acting chairman of this organization, Dr. Arndt, has many times, in a friendly way, accused me of giving all my patients hot and cold packs and some arsenite of iron hypodermically. I began to wonder myself, after having found so many of my patients were anemic, at the way they improved. Patients do not retain iron when given by mouth or injection. Iron and arsenic pills will have the effect of constipating these patients, and that effect only. The only satisfactory treatment I have found for the relative anemia we have here is iron in the form of hypodermic injections. We have fortunately at our command the recent preparations of arsenite of iron, citrate of iron, and the cacodylate of iron and sodium put up by many phamaceutical houses, so that we no longer have to resort to the old fashioned iron and arsenic pill which we used to give.

Sometime ago Dr. Sewall asked me with reference to the use of some iron preparations hypodermically. I told what experience I had had. Later I met him in an elevator and he said, "Lazell, you nearly killed one of my patients." He said the patient nearly bled to death from hemorrhage of the lung. Dr. Sewall did not consult me as to which of the iron preparations I used hypodermically. The patient was bleeding from the lungs, and he gave the citrate of iron, thereby adding iron to the patient's blood but reducing the coagulability of the blood.

We should not put iron beneath a patient's skin in the form of citrate of iron or of the arsenite of iron, without carefully considering just what effect each component of the compound will have. Those who follow Dr. Sewall's apt conclusion with reference to anemia in this state will get but few results from the administration of iron by mouth. But if they give them hypodermic injections of iron, they should not do it without thinking of what particular form of iron will be added to the patient's blood.

Philip Hillkowitz, Denver: There is one comment on the preamble of Dr. Sewall's excellent paper that I would like to make. The response of the body to an injury is always accompanied by overproduction. I believe it was Weigert who first enunciated the law of overcompensation, which holds good in the animal organisim wherever a loss is sustained. For instance, in inflammation we find more tissue regenerated than is necessary. In the famous side-chain theory, Ehrlich based the formation of antitoxins on this very law of overcompensation. There is an injury to the body; toxines are circulated in the blood, more antibodies are produced in the form of free receptors than are necessary, and these are the antitoxins. Along the same line of reasoning it is natural that when there is oxygen hunger, there should be an overproduction of red blood corpuscles to take care of the deficient oxygenation.

A word or two about the much abused Tallquist instrument. I can also testify to the fact that my eyes have not been sharp enough to tell a difference in ten or fifteen per cent. on the Tallquist instrument, and I have been using the Dare as Dr. Moleen has done. I have noted with a great deal of envy and admiration the painstaking care with which Dr. Sewall has carried out his experiment in the County hospital and how at the psychological moment he read off his results. Now the Tallquist instrument is inexpensive, and therefore within the reach of every physician, while the average practitioner must forego a more elaborate instrument. This reminds me of the time when as a youth I was interested in electricity. I wanted to make a telegraph instrument, and bought for twenty-five cents a little book which told the reader how to construct such a machine. The first paragraph in the book read about as follows: "If you want to make a telegraph instrument, go out and shovel snow or saw wood until you have earned three dollars, and then buy yourself one ready made." Moral: If you want to obtain an exact blood count, go to the proper source—a laboratory diagnostician.

Far be it from me, however, to discourage the physician from doing his own hemoglobin investigations. From a clinical standpoint an error of ten to fifteen per cent. in the hemoglobin estimation is of no serious moment so that where no great exactness is required the Tallquist scale fulfills a useful purpose.

Tracy Love, Denver: I wish to say a word or two in regard to the Tallquist instrument, because I have used it a good deal and have noticed, as we all have, difficulty in getting accurate readings. Of course, the scale does not come within ten points at any time, that is, it has only from ten to one hundred in ten degree units. So if you get a reading which is between any two you then merely approximate, saying "eighty-five," and it is reasonably correct. I think the eyes of individuals differ tremendously in their ability to read red. I know in my own case there is a distinct difference in my ability to read red with the right or left one, and both eyes give a reliable combination. I think the instructions for use of the Tallquist scale, while very brief and probably not absolutely accurate, can be well followed, and I have always made it a rule to read the color on the scale as soon as the glistening has left the paper or within half a minute thereafter. I have noticed many times that people who come for some condition which has nothing to do with the blood forming apparatus will give a reading between ninety and one hundred right along. I have a new Tallquist scale and it is difficult for me to see the difference between the two upper readings on the instrument itself, and on the older instrument there is probably an error in the whole reading of ten per cent., due to the gradual fading of the colors. That is another reason why the Tallquist instrument is inaccurate. Nevertheless you can depend upon the use of it. You can use it for lots of routine laboratory work. What difference does it make whether it is thirty-five or thirty per cent. hemoglobin? Not very much.

One point of importance in getting a color reading is that in the examination spoken of and using sunlight, you are dealing with a wet substance against a dry one. These colors will naturally reflect different portions of light. Wet paper will let through light easier than dry paper will.

Louis B. Wilson, Rochester, Minnesota: May I say a word or two about the Tallquist hemoglobinometer? When the accuracy of this instrument as compared with the Dare was under discussion, we made a careful test of the relative merits of the two instruments. Something over four thousand observations were made. We found that the accuracy did not vary eight per cent. when the Tallquist instrument was used with daylight; with artificial light we get about as high a degree of accuracy with the Tallquist as we did with the Dare.

Henry Sewall, Denver (closing): I am very strongly convinced that Dr. Love's hemoglobin estimate is from ten to fifteen per cent. too high. It takes ten minutes or eight minutes for the drop of blood to dry to such a state that its color tone is fixed. It is continually lightening, until it reaches a certain stage, and then does not lighten but seems to decompose. But it then changes in color quality.

Sublingual Medication.—William Paulson (British Medical Journal, September 26, 1914) calls attention to the great usefulness of this method and to the fact that it seems to be so little known. Any soluble medicament, especially the alkaloids, is even more readily absorbed from the mucous membrane beneath the tongue than from the subcutaneous tissue. Furthermore, the method is safer, cleaner and quicker. He says that it was used extensively in the South African war, and that one physician told him that he could treat fifty wounded and suffering soldiers in the same length of time as would be required to prepare to give a hypodermic to one. O. M. G.

According to recent investigations, says the Journal of the A. M. A., the symptoms noted in closed, crowded rooms—restlessness, headache, dizziness, nausea, etc.—are to be attributed to heat retention, and not, as previously thought, either to reduction of oxygen, increase in carbon dioxide or the organic matter present.

AN EXPERIMENTAL STUDY TO DETERMINE THE RELATION OF TUBERCLE BACILLURIA TO PULMONARY TUBERCULOSIS*

O. S. FOWLER, M. D., AND J. A. PHILPOTT, M. D., DENVER.

Pulmonary tuberculosis is certainly one of the most serious infections that mankind is called upon to resist, and when this severe condition is complicated by renal tuberculosis the struggle is made very much more difficult. The renal involvement probably always starts in one kidney only. It advances slowly and insidiously, probably not making its presence known to the host until that kidney is more or less completely destroyed. Yet surely, sooner or later, it destroys not only that one organ but its fellow also, and it is a foregone conclusion that it is only a matter of time until the life of the individual is the price paid in this unequal combat, for nature rarely if ever, unaided, heals a tuberculous lesion of the kidneys. It is therefore extremely important that we should have accurate knowledge of the early presence and etiology of this major infection, if we are to offer a reasonable suggestion for its cure or to decrease to any degree the operative risk of the individual.

It is therefore our hope that we may add some additional information upon the question as to how far each individual with pulmonary tuberculosis is surrounded by the risk of sooner or later having the serious handicap of renal tuberculosis added to his already severe pulmonary infection; for it may be that this added burden will turn the battle, with certain ultimate loss, against him.

It is quite generally accepted that tuberculosis of the kidneys is secondary to some other focus in the body and that the infection reaches here by way of the blood stream, even though it is impossible to demonstrate that focus; and since pulmonary infection is the most common tuberculous manifestation, we decided to make a study of a number of cases known to have pulmonary involvement, as to what proportion of them had tubercle bacilli in their urine, without at this time trying to prove or disprove whether these bacilli are the result of a demonstrable tuberculous lesion of the kidney, or whether they are simply filtered from the blood stream by a normal kidney, as claimed by some writers. Nor will we discuss whether there has been sufficient proof offered to show the presence of tubercle bacilli in the blood stream, as originally suggested by Rosenberger and later confirmed by Mendall and Petty, Liebermeister, Hilgermann and Lossen, and Ranstrom. The findings of these writers were later disputed by Dailey, who obtained wholly negative results in his study of the blood in seventeen cases of known pulmonary tuberculosis, using five methods of staining, and the injection of the blood into guinea pigs. He asserts that the writers first named were erroneous in their interpretation of the microscopical field. However, there is very sufficient evidence, from the clinical manifestations of pulmonary tuberculosis and other infections, that the infectious agent is carried by the blood stream and it is not always possible to demonstrate in the laboratory what we know to be true from the clinical phenomena of various diseases.

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*Read at the annual meeting of the Colorado State Medical Society, Sept. 9, 10 and 11, 1914.

In 1908 Dr. Joseph Walsh reported his findings from the examination of the urines of seventeen patients suffering from pulmonary tuberculosis. By inoculation of guinea pigs with the urine, fourteen pigs, or 82.5 per cent, showed tuberculosis. But he was dealing with very advanced cases, for eleven of the fourteen patients from whom the corresponding urines were obtained lived only on the average thirty-seven days after entering the hospital. Nor does he tell us whether any or all of these patients had symptoms of tuberculosis of the urinary tract, nor whether he required the finding of the bacilli in those areas he regarded as tubercles; so that we feel that his results are either inaccurate or at least not applicable to our present study. Moreover, it might even even be possible to collect a series of tuberculous individuals, 100 per cent of whom showed t. b. in the urine.

In 1911 Dr. Cunningham of Boston published his urinary findings in sixty-six selected cases of known pulmonary tuberculosis. In this series not one case showed any abnormal condition of the urine, and the author concluded that there was not a single instance of positive evidence that tubercle bacilli were being filtered or eliminated by the kidneys. He adds, "It may be fairly inferred from these experiments that it is not common at least for tubercle bacilli to be eliminated through the kidneys without affecting those organs." However, he excluded three cases in which the tubercle bacillus was found in the general urine, but in which negative results were obtained from the catheterized ureteral specimens, and we feel that he should not have done this because the late negatives do not prove error in the positives.

In 1913 Dr. Harry S. Bernstein presented his findings in one hundred cases of pulmonary tuberculosis, of which eleven were in the incipient stages, thirty-nine in moderately advanced stages and fifty far advanced cases. By inoculating guinea pigs with the urine of these patients "ten, or 10 per cent, of the pigs showed tubercles." But we are not told whether he based his findings upon the mere presence of "tubercles" or whether he demanded that the tubercle bacillus should be actually found. He says farther, "None of the ten patients presented subjective symptoms referable to the urinary organs." Thus he appears to conclude that the facts that only four of the ten positive ones showed albumen, and only three pus cells, and that there were later negative bladder findings in three cases, indicate that there was no involvement of kidney tissue; in other words, that symptomless kidneys are capable of filtering tubercle bacilli.

In view of the variance of the methods of the above observers and the wide differences of their results, we feel that more information should be had on this most important manifestation, tubercle bacilluria, for undoubtedly this is the earliest of all phenomena pertaining to renal tuberculosis. Most cases of tuberculosis of the urinary tract are seen only after there is sufficient involvement of the ureters or bladder to give irritation. But there is undoubtedly a long period in which tubercle bacilli are being carried down by the urinary stream from the kidneys, which may be partially or even wholly destroyed before the mucous membrane of the ureter or bladder becomes involved, for it is well known that these membranes are very resistant to infection. For these reasons we decided to make a study of all cases of pulmonary tuberculosis to which we might have access, without regard to the time or stage of pulmonary involvement or of any genito-urinary symptoms, but not including private cases that had been referred for diagnosis.

Through the kindness and scientific interest of Dr. Robert Irwin, superintendent of the Craig Colony; Dr. C. A. Bundsen of the Swedish Sanatorium; Dr. C. W. Hall of the City and County Hospital, and Dr. Herman Schwatt of the National Jewish Consumptives' Relief Association, all their tuberculous patients were placed at our disposal. We feel that these patients represent a collection of cases neither better nor worse than the average of cases of pulmonary tuberculosis. We thus obtained data regarding all classes and stages of sufferers from pulmonary tuberculosis.

The technique was as follows: Eight ounces of the morning urine, or all of it if less than eight ounces, was passed by each of the men into a sterilized bottle, after having passed a small amount to cleanse the urethra. The women were catheterized. A centrifuge tubeful of each specimen was centrifugated for seven minutes at the rate of two thousand revolutions per minute, the upper three-fourths was decanted off, and this was repeated until the whole specimen was used. The sediment was then thoroughly washed with sterile water and injected immediately into the peritoneal cavity of healthy guinea pigs in the region of the omentum. The pigs were killed and posted at the end of four weeks, and all tubercles and enlarged glands of the omentum or mesentery were examined for tubercle bacilli by staining with the Ziehl-Neelson method, and only those cases that actually showed bacilli were recorded as positive. Chemical and microscopical examinations of the urine were also made, not with the idea of using these findings in the final report in diagnosing renal tuberculosis, but simply as a matter of interest in comparison with the guinea-pig test, which is regarded as the only accurate method for demonstrating the tubercle bacillus. We did not make a microscopical examination by staining a smear of the sediment for the tubercle bacillus, as the procedure is difficult and inaccurate, and negative findings are without value. Rovsing claims to have found the bacillus by this method in 80.7 per cent of his cases, but no one else seems to have been able even to approach these results.

The results obtained from the individual cases are summarized in the following tables:

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Table No. 1.

Average age: Positive, 37.2 years; negative, 35.3 years.

Average years pulmonary tuberculosis: Positive, 3.2 years; negative, 4.3 years.

Number of day urinations: Positive, 3.8; negative, 4.4.

Number of night urinations: Positive, 2.1; negative, 1.4.

Number having pain: Positive, during urination, 3; after, 1; negative, during, 14; after, 5.

Number having history of hematuria: Positive, 0; negative, 4.

Number having complications: Positive, 1 kidney pain; 2 tuberculous testes; 1 edema of feet; negative, 4 kidney pain; 1 tuberculous spine; 2 tuberculous peritonitis.

Urinary reaction: Acid, 128; alkaline, 1.

Albumen in urine: Positive, 2, or 12 per cent; negative, 10, or 9 per cent.

Sugar in urine: Positive, 0; negative, 0.

Pus cells in urine: Positive, 92 per cent; negative, 73 per cent.

Blood cells in urine: Positive, 1, or .6 per cent; negative, 10, or 9 per cent.

Ephithelial cells in urine: Positive, 17, or 100 per cent; negative, 107, or 96 per cent.

Casts in urine: Positive, 4, or 24 per cent; negative, 13, or 12 per cent.

Bacteria in urine: Positive, 7, or 42 per cent; negative, 26, or 23 per cent.

Post-inoculation history: Positive, 17; negative, 112.

Table No. 2.

Grouping of cases according to stage of disease:

	Group A. Incipient.	Group B. Moderately Adv.	Group C. Far Adv.	Totals.
Males....	3	50	63	116
Females..	2	5	6	13
	5	55	69	129

Table No. 3.

Cases in which tubercle bacilli were found in the urine:

	Group A. Incipient.	Group B. Moderately Adv.	Group C. Far Adv.	Totals.
Males....	1	6	10	17
Females..	0	0	0	0
	1	6	10	17

Comment Upon the Above Tables: It is rather remarkable that of the thirteen women none showed tubercle bacilli in the urine.

Of the positive cases one, or eight-tenths of 1 per cent, was in the incipient stage. Six, or four and seven-tenths per cent, were in the moderately advanced stages, and ten, or seven and seven-tenths per cent, were far advanced cases. Thus it would seem that while there were more cases from those who have much pulmonary involvement, a good number (six) came from the moderately advanced cases, and one showed tubercle bacilli in the urine, while his lung condition was regarded by his physician as only in the incipient stage. Furthermore, we are familiar with the fact that many cases of renal tuberculosis are seen when no focus can be found in the lungs or elsewhere. It is, therefore, quite evident that the lung condition is not the controlling factor in the development of tubercle bacilluria. I wish to call attention also to the fact that the average age (Table No. 1) of the positive cases is 37.2 years, while the average of the negative cases is 35.3; there is nothing here that can be of importance. A physician friend recently remarked: "I expect you will find tubercle bacilli in the urine of all the old cases." Table No. 1 shows that the positive cases had had pulmonary tuberculosis only 3.2 years, as compared with the 4.3 years of the negative cases. We can, therefore, say that **neither the age of the individual, the time of pulmonary involvement, nor the degree of pulmonary destruction apparently has any particular influence upon the production of tubercle bacilluria.** In the matter of urinations day and night, the positives averaged only three and eight-tenths times in the day, against the negatives four and four-tenths times. In night urinations, however, the positives (two and one-tenth times) exceed the negatives (one and four-tenths times). Only four of the positives had pain during or after passing the urine, while nineteen, or a much larger percentage, of the negatives had like difficulty. There were relatively more of the positives who had some other complication (two with tuberculous testes and one with pain in the kidney region), while of the negatives four had pain in the kidney region, one had a tuberculous spine, and two had intestinal tuberculosis. Only one urine was alkaline out of the 129 specimens. Two positives, or 12 per cent, had albumen, while ten of the negatives, or 8 per cent, of them had it. No specimen had sugar in it. Ninety-two per cent of the positives and 75 per cent of the negatives had more or less pus, varying from a very few cells to many in a few instances. One positive, or six-tenths per cent, and ten negatives, or nine-tenths per cent, had blood cells. Four, or 23 per cent, of the positives and thirteen, or 12 per cent, of the negatives, had casts. **Thus it would appear that there is little importance to be placed upon the presence of albumen, pus, blood cells or casts in the diagnosis of possible renal tuberculosis. This is an important point, for much dependence is placed by some upon these findings in the urine, especially if associated with some disturbance of one kidney.**

In the above series one hundred and thirty-six guinea pigs were injected from the urines of one hundred and thirty-four patients. Five pigs died of shock within the first twelve hours, and one died of pneumonia and one of peritonitis seven days after inoculation, leaving a net total of one hundred and twenty-nine cases from which these data have been compiled. Seventeen pigs showed caseated tubercles, either in the omentum or in the mesentery, in which it was possible to demonstrate the tubercle bacillus, and there were several other cases which had inflammatory enlargement of various mesenteric glands, especially the glands located in the gastro-duodenal region; but in none of these could we show tubercle bacilli after the most careful search.

Dr. Bernstein reported finding 10 per cent positives in his series of one hundred cases. As we understand his report, he also did not select his cases, so that our findings compare quite closely, and we feel that they probably represent the approximate percentages of cases that have tubercle bacilli in their urine. The combined series number two hundred and twenty-nine cases, and so far as we are able to find in the literature, represent all that have been investigated in this manner.

We feel that there are many phases of the subject yet to be investigated before establishing fundamentally the etiology and proper surgical treatment of renal tuberculosis; but we feel that work along this line will open a field which offers a reasonable hope for a satisfactory explanation of the phenomena surrounding this disease. **We believe we should at this time urge that all cases of pulmonary tuberculosis are entitled to a careful animal inoculation test at least once a year from the time when pulmonary involvement is discovered.** This practice would give the patient the possibility of using the most favorable period for surgical intervention if such proved necessary. Too often now we see these cases too late to give them the benefit of our best surgical knowledge.

This study has raised some very interesting and important questions. First, assuming that it is possible to have a shower of tubercle bacilli in the blood stream following the rupture of a tubercle, and further that it is possible for the kidneys to filter tubercle bacilli into the urinary stream, does it ever occur that at some future period there are no tubercle bacilli in the urinary stream, i. e., have the kidneys been able to filter all the tubercle bacilli and yet remain the same as before their exposure to this infection? Further, if such a thing can or does occur, then it is true that both kidneys are equally exposed to the tubercle bacilli in the blood stream.

Now using this as a hypothesis, why do we find that at some later date tubercle bacilli are to be demonstrated in the urine of one kidney only; or in other words, when and why did one kidney become tuberculous whereas both were equally exposed to the infection by way of the blood stream?

Or again, when and why does the filtering process of any haemic infection produce a multiple abscessed condition in one kidney, while the other entirely recovers or at least remains free from abscess? Undoubtedly this can only be explained by supposing that there is some local condition in that kidney which has reduced its resistance to infection and made it possible for the infection to obtain a foothold in one kidney which it could not obtain in the other. In those cases in which infections are bilateral there must be a reduced resistance in both kidneys due to some abnormal condition under which these kidneys are laboring. This perhaps would explain the etiology of both unilateral and bilateral renal infections. When proof for this is offered we shall have the facts concerning the phenomena of renal infections, and we shall not have to arrive at a more or less inaccurate diagnosis by following a course of reasoning from clinical manifestations.

It is our intention to further study the positive cases in the following manner: Each will be cystoscoped and both ureters will be catheterized and these urines used to inoculate guinea pigs. These pigs will be posted at the end of four weeks, and all kidneys showing tubercle bacilli coming from them will then be studied by all recognized methods to determine whether or not there are any local conditions that have lowered their resistance to this infection. We sincerely hope that by this study we may be able to offer some suggestion that may lead to a satisfactory explanation of the etiology of this most serious major infection.

We earnestly urge upon all physicians who have tuberculous patients in their care that they explain to them that there is considerable risk (about 13 per cent) that sooner or later they may have renal tuberculosis, and that they will provide for them an animal inoculation examination at least once every year; and if tubercle bacilli are found that these physicians should further advise a complete investigation of the urinary tract. We venture to assert that, if this broad scientific view were taken by all of us, within a relatively short time we would have enough accurate information at our command to afford a reasonable hope of proof of the real etiological factors underlying renal tuberculosis being furnished. With the vast host of tuberculous individuals here in the West, we believe that we of Colorado owe it to the profession to utilize for this purpose this wealth of material.

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High Cost of Dying.—It was recently shown that New York undertakers were charging relatives of deceased persons three or four times as much for transcripts of certificates of death (used to collect insurance money) as was charged by the New York Health Department; and that some undertakers charged the relatives $1 for a burial permit which was issued to the undertakers free of charge by the Department of Health.

NEUROLOGY OF EPIDEMIC OR ACUTE ANTERIOR POLIOMEYLITIS.*

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It is quite difficult to find a part of the subject of anterior poliomyelitis which is not strictly neurological; so that I may be pardoned if what is said appears to encroach on the domain of the hygienist, the epidemiologist, the pediatrist, the pathologist, the orthopedist and probably others. With the knowledge that the epidemiology and bacteriology will be more ably considered by others, it may be fitting to introduce the subject neurologically by brief reference to the manner in which the nerve structures suffer.

Dr. Ivan Wickman, in what is probably the most complete modern monograph on the subject, suggests that all diseases arising from the same virus as acute poliomyelitis should be grouped under the term "Heine-Medin disease." He distinguishes the following eight types:

1. The spinal poliomyelitic form.
2. The form resembling Landry's paralysis.
3. The bulbar or pontine.
4. The encephalic.
5. The ataxic.
6. The polyneuritic.
7. The meningitic.
8. The abortive.

With Krause, the writer is of the opinion that the bulbar, encephalic, ataxic and meningitic forms might better be included under one heading, as cerebral.

Regarding the period of incubation, most authorities are non-committal. The investigation committee of the New York epidemic says: "The data on the probable average incubation period are too meager to permit of definite conclusions, though the evidence indicates an average incubation of less than ten days." Currie & Bramwell (Rev. Neurol. and Psych., Vol. IX, No. 1, 1911) describes five cases of epidemic type, concluding that the period of incubation is four days or less and that the infection may be carried by a third person. The disease is regarded as contagious.

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The abortive types are divided into—

1. Cases running the course of a general infection.

2. Cases in which signs of meningeal irritation are especially prominent (pseudo-meningism).

3. Cases accompanied by distinct tenderness (pseudo-influenzal).

4. Cases with gastro-intestinal disturbances.

Ed. Müller is of the opinion that the abortive are far more numerous than the typical, in mind that the abortive type is of great importance, especially in relation to the epi- especially among adults. It is well to bear demiology.

In acute poliomyelitis, Batten and Holmes (Brain, May, 1913, p. 260) say: "We have a disease which, though rarely limited to the gray matter of the cord, produces its destructive effects chiefly in it, and rarely interrupts or produces directly secondary degeneration of the fibers of the white columns. Further, we know that in the severer cases at least the destructive process is not limited to the ventral horns, as the title poliomyelitis anterior acuta suggests, but may, and frequently does, involve the intermediate gray matter of the posterior horns. Finally, though lesions are, as a rule, diffuse and widespread in fatal cases, small and isolated foci of disease may be usually found in certain regions."

Collin K. Russel, of McGill University, writes (Mod. Treatment of Nerv. and Ment. Dis., Vol. II, p. 567): "As a general rule the patient complains of a little indefinite general malaise, has some headache, is restless and may vomit once or twice." This, in the majority of cases, with the usual constipation, slight fever and muscular tenderness, represents the pre-paralytic clinical picture.

In this stage, according to Flexner, a blood count will show some leucocytosis with relative increase in the lymphocytes, and the spinal fluid gives a positive Noguchi butyric acid test for globulin. Cytological examination of the fluid shows an increase of the white cells, both polymorphs and lymphocytes, which is of especial diagnostic value in the abortive cases.

The pathological basis of the disease was first thought to be an acute inflammatory process (Coril, Prevost and Vulpian, Charcot and Jaffroy). Charcot regarded it as a primary disease of the anterior horn cells. The majority of later investigators, however (Marie, Siemerling, Goldscheider, Redlich, Wickman and others) look upon the process as an interstitial vascular one.

Without discussing at this time the moot question of the pathological processes by which the changes are brought about, we are able to say with certainty that the paralysis is to be attributed to destruction of or marked injury to the multipolar cells of the anterior horns of the spinal cord. Whether this be due to a toxic degeneration, as a result of thrombotic occlusion, or even from compression through edema and the almost constant perivascular infiltration, makes but little difference after the degeneration has taken place. It is to be recalled that not only do these cells preside over muscular action and the nutrition of the muscles, but influence as well the nutrition of all tissues within the area of distribution of their axons, even including the bones, skin and joints.

Essentially the disease may be regarded as general with localized manifestations in the majority of cases.

The feverish stage lasts from a few hours to several days. The cases which are mentioned as persisting for longer periods are not free from the suspicion of being relapses, in which the interval may be weeks or months, and Wickman further states that "These relapses contradict clinical, epidemiological and experimental experience, which indicates that a single infection produces immunity."

The most obvious symptom is the characteristic paralysis of the peripheral neuron type, which is most widespread at the very commencement. The cases in which one extremity after another is involved over a period of several days, and the ascending or Landry type, are exceptional. The essential features of the paralysis include flaccidity with loss of myotatic irritability, loss of reflex action, reactions of degeneration and wasting of the muscles. There are varying degrees of pain and, later, sensitiveness to pressure; if the latter is marked there is probability of a complicating neuritis. Sensory symptoms in the true or uncomplicated types are absent and the sphincters are usually not affected. Arrest of growth, deformities, loosening of the joint structures and disturbances in circulation become evident. The muscles show either a simple atrophy or a fatty or fibrous degeneration. The results of these conditions and the character and permanence of the deformities are too well known to be given further attention here.

Treatment.

In view of the infectious character of the disease the same regulations for the prevention of this as for the prevention of other acute infectious maladies should be enforced, namely, isolation of the patient, disinfection, etc. This, to be effective, should include not only the paralytic but the abortive cases and the healthy virus agents (Wickman). During epidemics it would be well to guard the alimentary tracts of children, and since Flexner and Lewis find that a one per cent. solution of hydrogen peroxide destroys the virus, and the disinfection of the naso-pharynx by this means can do no harm, it should be a prophylactic measure easily and frequently applied.

There has been so much in confirmation of the value of hexamethylamin in the early stages that it seems to recommend itself in all suspicious cases as early as possible, and more especially if the disease is prevalent. Josefson (Hygeia, 1911) of Stockholm used it in thirty cases, in eight of which it was started in the first three days, and these all recovered without paralysis.

It has been found that the remedy reaches its height of concentration in the spinal fluid in a half to one hour after administration (Crowe, Bull. of Johns Hopkins Hosp., Sept., 1912).

There are very few toxic symptoms from the drug, according to Crowe, although 200 to 700 grains daily for four or five days have been given. It should be well diluted, and ten to fifteen grains given with at least eight ounces of water. It may be given in liquid nourishment or per rectum.

Little is to be expected from serum treatment except in the hope of immunizing. This has been successful in monkeys, but not as yet in man. Whether cases are seen sufficiently early to permit of its use in aborting the disease appears doubtful.

It would seem hardly necessary to mention that thorough eliminative treatment is the first requisite. Quietude, which on account of the muscular tenderness will not be difficult to obtain, is essential while the temperature and pulse are elevated.

The position of the patient probably makes but little difference, and it is also questionable whether ice bags or counter-irritation of the spine have any real value, and with little evidence of doing good they certainly add pain and discomfort and at times slowly healing abrasions. Theoretically lumbar puncture should be of service in relieving the pressure and possibly the edema, especially in the meningeal forms, where relief of headache often follows. Hot baths probably do more to relieve the pain and promote restful sleep. In some cases phenacetine or even opiates may be necessary.

It seems that there is a difference of opinion as to whether or not active treatment in the form of passive or active exercise and electrical stimulation should be instituted. This is opposed on the ground that it increases the damage to the cord and that patients recover quite as well without as with exercise and stimulation. The latter may be true in mild or abortive cases, although the statement that the damage to the cord is increased lacks evidence. It should also be remembered that with the degeneration of the polar cells the axons are also degenerated, and for this reason it is difficult to explain a deleterious influence on the polar cells as a result of massage of the muscles. Inquiry into those cases with great deformity and contractures will invariably show that their active treatment has been very limited or omitted. It is very doubtful whether the indigent cases, which show the most marked sequels, are over-treated.

It may be set down as the opinion of those who have had the widest experience that it is necessary to begin active treatment as soon as the acute stage is over and the pain and tenderness of the paralyzed parts have to a great extent subsided. This is usually about the end of the second or beginning of the third week.

While recovery of the ganglion cells which have been only temporarily damaged cannot be hastened as the edema subsides, the muscles may be kept in good condition by electrical stimulation and massage until restitution takes place.

The passage of an electrical current—either faradic or galvanic—along the spine has no curative influence, and if strong enough to be painful may do harm. That there is a therapeutic value in electricity per se has no foundation aside from its psychic effect. Static sparks and high frequency currents are mentioned only to be condemned.

It may be said then that, as no specific treatment for the inflammation within the spinal cord is known, and no special procedure has yet been found to limit the damage in the cord, the treatment, after the febrile stage and as soon as the violent pain has subsided, should be directed to relieving the muscular weakness and to the prevention of contractures. Each limb (for those that are not completely paralyzed are generally somewhat affected) must be put through a course of repeated movements. Active movements are often made possible by having the patient in a deep hot bath (100°), where voluntary movements of the limb, which are otherwise impossible, may be obtained.

Contractures in the leg may be avoided by applying a removable splint or by elastic bands attached to the foot from the knee, when at rest.

With the beginning of muscular movements strychnine should be administered in increasing doses, reaching 1-50 grain three times a day for a child 3 years of age, and best given in phosphatic syrup or the elixir of glycero-phosphates.

Electricity is not to be recommended until the acute stage is past and the patient able to sit up; but massage, passive movement and the development of every slight voluntary movement are very important.

In applying electricity it should be determined which muscles respond to the faradic current and which can only be made to contract with the galvanic current.

Muscles which can be exercised by the faradic current should be so treated, while if no response is obtained, the use of this current is of no service. Galvanic stimulation should be used in those failing to respond to the faradic. The cathode is best placed over the motor points of the muscle and the anode on the back or other indifferent part. The strength of current should only be sufficient to cause the contraction, and be interrupted to repeat the action. As soon as faradic stimulation becomes possible the galvanic should be discontinued. Slow interruptions of the faradic are to be preferred to rapid vibrations.

The stimulation should be brief at first and increased as the muscles improve in strength.

Unquestionable improvement will be observed to follow careful application, even after a year or more, and the more patient and persistent the exercise the more nearly the function approaches restoration.

When these measures have ceased to benefit, the treatment to be considered includes tenotomy, possibly nerve or tendon transplantation and mechanical appliances, all of which come under the province of the orthopedist or surgeon and will be discussed by others.

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PROPHYLAXIS AND ORTHOPEDIC MANAGEMENT OF ANTERIOR POLIOMYELITIS.*

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There is probably no disease that has attracted more atention in the past two years than anterior poliomyelitis or infantile paralysis, from both the pathological anl clinical standpoints, and although the clinician and pathologist have unravelled many of the obscurities of this intricate and often perplexing disease, nevertheless there are many more questions to be settled and much scientific work to be accomplished.

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Jakob Von Heine gave the first classical description of this disease, and termed the affection infantile paralysis, owing to the fact that the cases observed by him occurred in children or in young adults who had had the disease during childhood. In 1868 the first authentic description of the epidemic form of acute anterior poliomyelitis was given by Dr. Chr. Bull. He reported fourteen cases with five deaths, and even at that time discussed the question of a "contagium vivum."

Before discussing the subjects of prophylaxis and treatment as they concern the orthopedic surgeon, it will be well to enumerate the different forms or manifestations of poliomyelitis which are now recognized. They are: the abortive type, the spinal type, the type of poliomyelitis which stimulates Landry's paralysis, the bulbar type, the cerebral or encephalitic type, the ataxic type (similar to that seen in Friedreich's disease, the polyneuritic type, and the meningitic type.

Likewise there are three stages or phases of anterior poliomyelitis which must be carefully borne in mind, for upon their recognition the care and management of the case entirely depend.

First: The acute stage begins with the first symptoms of infection and ends with the entire subsidence of pain and temperature.

Second: The subacute stage begins with the entire absence of temperature and lasts until the establishment of the permanent paralysis.

Third: The convalescent stage.

It must be mentioned that these stages or phases of the disease often merge into one another, but they are nevertheless distinct guides for the proper management of these cases.

Prophylaxis against the disease is most important, for there is, so far as is known, no means of influencing the disease when once infection has occurred. We must therefore resort to every known means to guard against the spread of this infection which results in so many cases of hopeless crippledom. As Edward Muller says, "the disease is more to be feared than many other infectious diseases of childhood because the majority of those who survive remain permanently paralysed; their average earning capacity is diminished and in many instances they are chronic invalids." Here in Colorado we have been most fortunate in escaping this frightful disease in the epidemic form which many of the larger cities of both east and west have experienced; for example the epidemics in New York, Boston, Cincinnati, and Los Angeles. Compulsory registration is indeed to be highly endorsed, and should be most rigidly enforced.

Flexner, Wickham and other observers have shown that the disease can be transmitted from one person to another, and all contact with a person who may be a carrier of the virus should be avoided. In epidemics it is known that this virus is transmitted more often by persons suffering from the slight or abortive type or by healthy carriers, than by the patient who is confined to bed with the disease.

Isolation should be most complete and thorough during the acute stage. Flexner has shown the efficacy of giving urotropin in large doses to persons exposed to the disease and has demonstrated the inhibitory effect of this drug on the growth and virulence of the microorganism. Careful cleaning of the mouth with antiseptic sprays, for example hydrogen peroxide in 1 to 2 per cent solutions, or mentholated sprays should be used. Careful disposition should be made of the patient's excretions and secretions, particularly from the nose and mouth. Individual dishes and clinical thermometers should be used. The room and house in which the patient has been ill should be thoroughly disinfected. Landsteiner and Levaditi have shown that the use of radium and of the X-ray has no effect either as to prevention or cure of the disease. A strict quarantine should be maintained during the acute stage, which usually lasts from three to eight weeks, but may be prolonged even to fourteen to sixteen weks.

Regarding the orthopedic management of

the disease we must again refer to the three stages of anterior poliomyelitis previously mentioned.

First: The treatment of the acute stage or phase includes: Absolute rest in bed, in a warm but well ventilated room, the affected limbs being wrapped loosely in cotton, which is held in place by a roller bandage; a light diet, and large quantities of water either by rectum or mouth or both; cathartics to assure a free daily evacuation of the bowels; freedom from noise or excitement; and the observation of strict precautionary measures to prevent the spread of the disease. Massage, electricity and stimulating drugs, such as strychnia or digitalis, are contraindicated during this stage of the disease.

This stage is accompanied by a temperature of usually from 100 to 102.6 degrees F., which as a rule continues for about twenty-one days, but may continue for several weeks. Should this stage continue beyond the average period of three weeks, the same course of treatment should be carried out no matter how mild or virulent the form of infection may be. The keynote then in this stage of the disease is rest.

Second: With the subsidence of the temperature and the establishment of the paralysis, affecting one or many groups of muscles, the patient passes into the subacute or second stage of anterior poliomyelitis. Pain and tenderness on motion may however still continue during this period, and as long as tenderness lasts it indicates the existence of active disease in the motor and sensory areas of the damaged cord; and naturally massage and electricity should under no circumstances be used until the tenderness of the affected limbs has disappeared. The orthopedist believes that here a mistake is often made and that stimulation, no matter by what method, should not be resorted to before complete subsidence of these two cardinal symptoms, pain and tenderness. Tenderness may last from eight to twelve weeks, but usually disappears in about three to four weeks. Improvement at this time is marked, and we must begin to prevent the development of contractions resulting in deformities. Equinus or drop foot due to the contraction of the tendo Achillis must be overcome by using a suitable splint, made either of molded plaster of Paris or steel, and holding the foot at right angles to the leg with the thigh and leg fully extended to 180 degrees. Sometimes even the weight of the bedclothes is sufficient to act as a causative agent in producing drop foot.

Third: With the absence of fever and complete freedom from pain and tenderness, the third or convalescent stage is reached. The patient is now allowed to be up and about, and our attention is at once directed to the correction of any existing or developing deformity.

The appropriate measures consist of: Massage; muscle training, by which we mean medical gymnastic work; electricity; and the correction of deformity by corrective apparatus or operative interference.

Massage should be given daily by a competent masseur and medical gymnast, and not left to the management of the ordinary "rubber," who, unskilled in his work, accomplishes more harm than good. The faradic and galvanic currents are of value, and, combined with massage, should be continued over a long period of time.

The correction of deformity by apparatus is naturally governed by mechanical principles, and should be carefully and accurately applied, not by an instrument maker, but by the surgeon. Double caliper splints, club foot braces, braces for correction of valgus deformities, hip splints, spinal braces, such as the Knight, Sayre or Taylor supports, are indicated in treating the many and various deformities met with. No one form of apparatus is always suitable for any one kind of deformity.

The use of plaster of Paris to act as a more fixed dressing and to aid in overcoming contractions is of great service, particularly, for example, in contraction of the feet resulting in varus or in flexion deformities of the knee or contraction of the thigh muscles and fascia.

In the cases of scoliosis due to anterior poliomyelitis, application of the Abbot jacket, or of a modification of this corrective jacket, in many instances gives excellent results.

Time will not permit of going into an elaborate description of the many forms of braces, corsets and plaster jackets used by the mechanical surgeon in these cases, but the above outline may serve to point out in a general way what is indicated. The time to correct deformity in infantile paralysis is after the acute symptoms have subsided, and the conservative method should in all cases be used before radical operative surgical measures are resorted to. The "rushing in" to operative interference in many of these cases is to be heartily condemned. For example, not every child with a contracted heel cord needs an operation to overcome the equinus, but suitable apparatus in many cases gives far better results.

On the other hand there are many deformities resulting from poliomyelitis which cannot be corrected by mechanical support, and here we must operate and endeavor to give the patient a useful limb in a proper attitude.

The operative procedures include:

a. Tendon fixation and tendon transplantation.

b. Arthrodesis, or stiffening a joint by denuding the joint surfaces of their cartilages.

c. The use of silk ligaments to replace paralyzed muscles.

d. The removal of one or more bones to insure more stability; e. g., in the Whitman operation for calcaneo-valgus.

e. Redressment by stretching operations on the paralyzed limbs.

f. Simple tenotomies.

g. Osteotomies.

There is no doubt that one or more of these measures used in suitable cases is indeed a great aid to these paralytics, and in many instances brilliant results are obtained. In a general way it may be said that cases of poliomyelitis should not be operated upon for from two to three years after the acute symptoms have subsided. In children it should never be forgotten in the choice of bone operation, that the epiphyseal centers must not be destroyed, as the growth of the bone would then be arrested. Conservatism should invariably be the key-note in the management of these cases, and months and even years may be required before the desired end is reached.

References to the interesting articles written by Lovett, Wickman, Römer and Rachford have been made in the preparation of this paper, and the writer wishes to acknowledge his indebtedness to the authors referred to.

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Rachford. Diseases of Children, 1912.

News Notes

On the 15th and 16th of February is held in Chicago the eleventh annual Conference of the American Medical Association on Medical Legislation and Medical Education. Colorado's official representative at this conference is Dr. R. W. Corwin of Pueblo. Dr. Edward Jackson is on the program as leader of the discussion on a paper by Dr. Frank C. Todd of Minneapolis on the "Preparation of Specialists in Ophthalmology and Oto-Laryngology." This essay is one of four which make up a symposium on higher degrees in medicine. On the 17th of February will be held the joint session of the Federation of State Medical Boards of the United States and the Association of American Medical Colleges.

The new $75,000 medical building of the National Jewish Hospital in Denver, Samuel Grabfelder's latest gift to the hospital, was dedicated on January 10. Special features of the new building are research laboratories and X-ray room. The program for the exercises included addresses by Mr. Grabfelder and Rabbi W. S. Friedman, and a paper by Dr. M. Kleiner on "The Value of the Medical Building."

The recent improvements in the University of Colorado Hospital at Boulder were thrown open to public inspection on January 22. Drs. W. W. Reed, O. M. Gilbert and F. R. Spencer pointed out to visitors the special features of the hospital.

A letter from the U. S. Treasury Department states that on 8th March examinations of candidates for admission to the grade of assistant surgeon in the Public Health Service will be held at Washington, Boston, New York, Chicago, St. Louis, Louisville, New Orleans and San Francisco. Candidates must be between 23 and 32 years of age.

Health Officer O. R. Gillette of Colorado Springs lately found it necessary to defend in the newspapers the action of the health department in continuing the muzzling of dogs as a protection against the spread of rabies.

The annual report of Dr. C. W. Plumb, as city physician of Grand Junction, shows that, although during 1914 the city was swept by the worst epidemic of whooping cough in its history, only one case was reported to the city health officer as required by the regulations.

The Denver Health Department has instituted a vigorous campaign against physicians who are delinquent in reporting births. A number of well-known physicians were each fined $5 and costs. The attempt to improve the recording of vital statistics should have the whole-hearted support of every Denver physician. One doctor is said to have excused himself on the score that his office desk had not been cleared for five years.

At the annual banquet of the St. Anthony's Hospital staff the following officers were elected: Dr. F. G. McKlveen, president; Dr. Frank McCartney, vice-president; Dr. W. R. Matson, secretary, and Dr. George Miel, treasurer.

The St. Joseph's Hospital staff held their annual meeting and dinner on January 16, when the following officers were elected for the new year: President, Dr. J. N. Hall; vice-president, Dr. Robert Levy; secretary, Dr. Robert L. Charles. The executive committee consists of Drs. Edward F. Dean, Leonard Freeman and H. H. Martin.

On January 11 Dr. Charles A. Powers, in surprisingly good condition after his recent illness, left for Philadelphia in the company of Dr. Frank T. Kenney and Dr. S. Fosdick Jones. From there he subsequently proceeded to Florida.

The Lake County Medical Society has re-elected for 1915 its 1914 officers, as follows: Dr. A. J. McDonald, president; Dr. H. A. Calkins, vice-president; Dr. E. A. Whitmore, secretary-treasurer.

The annual meeting of the Mesa County Medical Society was combined with a banquet, at which sixteen members were present. The following officers were elected: Dr. J. U. Sickenberger, president; Dr. A. L. Craig, first vice-president; Dr. A. G. Taylor, second vice-president; Dr. R. B. Harrington, re-elected secretary and treasurer; Dr. J. N. Shields, delegate to the State Society, with Dr. Knude Hanson alternate and Dr. R. B. Porter second alternate.

At the annual meeting of the Prowers County Medical Association, held in Lamar, Dr. N. M. Burnett was elected president and Dr. F. M. Friend secretary.

A new medical society has been formed at Las Animas, to be known as the Bent County Medical Society. The following officers have been elected: President, J. O. Hardy; vice-president, S. V. Hageman; secretary, P. A. Leedham; delegate, J. O. Hardy; censors, J. R. Gaines, A. L. Lafferty and J. W. Brown.

Dr. R. T. Ramsey returned in the latter part of January from a two months' stay in Florida, whither he was called on professional business.

Dr. F. F. Simpson of Pittsburg, Pennsylvania, treasurer of the Committee of American Physicians for the Aid of the Belgian Profession, has forwarded several lists of subscriptions to the relief fund. The names of some Denver physicians have already appeared on these lists, and further contributions are urgently solicited. Professor Charles Jacobs of Brussels states that 1,000 Belgian physicians are poverty stricken, and 2,000 to 3,500 are suffering cruelly as a result of the war. During the week ending January 30, 200 boxes of food were purchased out of the funds sent to the Committee.

The Professional Women's Club of Denver is planning a discussion luncheon to be addressed by Prof. J. D. Heilman of Greeley, on "Our Mental Defectives."

On January 18 Dr. R. C. Whitman gave an illustrated lecture on "The Cancer Problem" before the University Scientific Society at Boulder.

Dr. C. T. Burnett returned to Boulder in the early part of January after four months' absence. Dr. Burnett substituted post-graduate study at Harvard University for a trip to Europe, which had been planned before the war.

Dr. G. A. Matthews of Wray, Colorado, writes that there is a good opening for a doctor at Eckley, fourteen miles west of Wray, on the Burlington line.

Dr. Clyde Knuckey has purchased the practice of Dr. Charles M. Spicer at Wiley. Dr. Spicer expects to spend much of this year in taking post-graduate work in the East.

Drs. Miller E. Preston and J. C. McGillivray are still fighting the recent decision of Commissioner Nesbit to abolish their positions as police surgeons to the City of Denver. An order by the Civil Service Commission for reinstatement of the two surgeons was met by a resolution of the City Council formally abolishing the office. One newspaper report suggests that, if the doctors are reinstated, Commissioner Nisbet will exercise an admitted discretion as to their exact duties in the police department by assigning them beats as patrolmen!

The puffs published in local newspapers by traveling dentists are often somewhat amusing, but the Craig Courier lately printed one that must be regarded as a classic. It includes such phrases as "that jolly pioneer dentist," and "knows the business from prospecting and locating mining claims to the finest gold fillings and crowns." The crowning evidence of professional attainments is the statement that "Dr. Watkins is also a graduate optician . . . and is fully competent to test your eyes . . . and can fit them while you wait."

Dr. George F. Roehrig was called east in January by the sudden death of his mother, at the age of 83 years.

Dr. A. J. Lanza, of the United States Public Health Service, has been called to Missouri, on official work which will probably keep him for about four months. He hopes to return to Denver.

President Farrand addressed the Denver Philosophical Society on January 28th on "Certain Aspects of Race Psychology." Dr. Farrand does not recognize the existence of fundamental race differences in psychology.

Dr. G. B. Packard, his son Robert, Dr. S. Fosdick Jones, and Dr. H. W. Wilcox will shortly move into the Metropolitan building.

Drs. S. B. Childs and L. G. Crosby will henceforth carry on their x-ray work in association.

Dr. and Mrs. Carl Roehrig have been smiling over the arrival of a gentleman visitor whose coming was playfully announced to the world at large under the title of George Frederick Roehrig III.

Dr. W. W. Grant spent three days in Chicago in the beginning of February.

Dr. Ranulph Hudston lately returned from a five weeks' visit to Rochester, Minn.

Dr. C. W. Hall, for two years chief resident physician at the Denver County Hospital, left at the beginning of February to begin the practice of medicine at Quincy, Ill. He took with him as his bride Miss M. Swanness, who had almost completed her course of training as nurse at the hospital.

Dr. Clive Kendall, rcently located at Paonia, has gone to San Francisco, to take up duties at the Southern Pacific Railroad Hospital.

Pueblo Notes.

Drs. Work, Rich and Epler will attend the midwinter conference of the A. M. A., at Chicago, February 15 and 16.

Dr. T. A. Stoddard presented a paper on Prophylaxis of Uterine Carcinoma before the Bent Couuty Medical Society on February 2.

Dr. Luigi Gardini has moved to Los Angeles, California, where he is practicing medicine.

Dr. C. A. McLauthlin, formerly of Woodcroft Hospital, has opened offices in the Metropolitan building, Denver.

Dr. Crum Epler paid a visit to Denver at the end of January.

Constituent Societies

BOULDER COUNTY MEDICAL SOCIETY.

The Boulder County Medical Society met at the Hotel Boulderado, Thursday evening, January 7th. Twenty members were present. In the absence of Dr. Gillaspie, Dr. H. A. Greene presided.

A letter of thanks from Mrs. Trovillion for flowers sent Dr. E. B. Trovillion was read.

Dr. C. L. La Rue was instated in this society from his former society in Oklahoma.

The Secretary's report for 1914 was read and approved.

Dr. C. E. Giffin was elected President; Dr. H. A. Greene, Vice President and F. R. Spencer, Secretary and Treasurer. Dr. W. H. Reed was elected delegate to succeed Dr. W. L. Snair, with Dr. W. H. Jolley first alternate and Dr. O. M. Gilbert second alternate. Dr. G. H. Cattermole was elected Chairman of the Board of Censors with Dr. E. B. Queal and Dr. W. A. Jolley.

Dr. G. H. Cary reported in abstract three articles from the literature as follows: 1. The Pathology of Dust-like Opacities of the Vitreous, etc., by Straub. 2. Diagnostic and Therapeutic uses of Tuberculin in Ocular Diseases, by E. Davis; 3. Bronchial Asthma and Relations of Nasal Conditions to It, by J. W. Abbott..

Dr. F. R. Spencer reported two articles from the literature on eye, ear, nose and throat diseases: (1) "Acute Thyroiditis as a Complication of Acute Tonsillitis," by C. F. Theisen; (2) "The Bronchoscopic Treatment of Spasmodic Asthma," by G. F. Keiper.

The papers were discussed by Drs. Snair, Gilbert, C. E. Giffin, H. A. Greene, Cattermole, Burnett and Spencer.

Dr. G. H. Cattermole reported a case as follows: A baby with tuberculous meningitis, with tubercles on the skin of the buttocks and abdomen. The mother has pulmonary tuberculosis. The rarity of multiple tuberculous lesions in any patient in Colorado was mentioned. Tuberculin skin tests were discussed, especially the intracutaneous injection of tuberculin.

F. R. SPENCER, Secy.

The Boulder County Medical Society met at the Hotel Boulderado Thursday evening, January 14th. The paper of the evening was by Dr. Francis Ramaley—"Is Room Disinfection of any Value?" The paper was discussed by all the members present.

F. R. SPENCER, Secy.

The Boulder County Medical Society met at the Boulder Commercial Association rooms, Thursday evening, January 21st. Dr. Clay E. Giffin presided.

Dr. O. M. Gilbert reported a case of pulmonary tuberculosis in a young woman. Chest signs not very marked, the apices only being involved. Very little fever with menstruation; none at other times. Positive reaction to tuberculin. Pain in the pelvis, fundus of uterus retroflexed with small fibroids present. Mother died from cancer of the uterus following fibroids and one sister almost died from extensive fibroids. Consultations were held. Diagnosis of fibroids confirmed and an operation decided upon. Recovery was uneventful until the ninth day after the operation, at which time the temperature was 99 degrees plus. Pain in the right ovarian region. A convulsion followed immediately. Patient passed into coma. Morphine atropine and strychnine were given hypodermically at once. Breathing was very difficult and painful. Normal saline ordered, but another convulsion came on and death resulted before it could be given. Pelvic or cerebral hemorrhage and uremia were considered. The first was not likely on the ninth day; cardiac and pulmonary hemorrhage not probable. The urine had been negative and was at the time of death. Pulmonary embolism was considered. Convulsions may be present when a large vessel is plugged.

The autopsy showed a large, soft, red clot in the right ventricle, extending into the left pulmonary artery. The embolism came from the pelvic veins, which had been ligated nine days before. The convulsions were due to air hunger.

The case was discussed by Dr. C. E. Giffin.

Dr. C. W. Poley reported a case of bronchitis with bacillus and spirillum of Vincent's angina present in the sputum. Prompt recovery. The throat was not involved. Dr. Tom Walker stated that spirilli resembling these in Vincent's angina are often present in the throat and mouth. He stated that he had recently seen a case in Denver with involvement of the glans penis with extensive ulceration.

Dr. C. Gillaspie reported a case of rheumatic endocarditis in a child of seven. The case was seen by Dr. Gilbert in consultation. The ankles were swollen and painful; pain in the right abdomen just under the ribs; this increased. The temperature was 100-101 for a week. The appetite was poor. Heart murmurs were present. The liver was below the ribs; lungs congested. Fluid collected in the scrotum. Temperature and pulse improved. The child slowly failed and died early this morning. No pericardial effusion. The child had really pericarditis as suggested by Dr. O. M. Gilbert. Digitalis and salicylates were given freely.

The case was discussed by O. M. Gilbert. A post mortem could not be obtained.

Dr. C. E. Giffin reported a case which had been operated on in Greeley for gall stones about nine or ten months previously. Patient had pain in the right shoulder with a temperature of 101. The shoulder joint was freely movable, the lungs were negative. Pus had been found in the gall bladder, which was drained. Leucocyte count 51,000. The gall bladder region was very tender.

She had a small focus of pus in the gall bladder. This was ruptured by a hard day's work and gave her symptoms. The patient made a prompt recovery.

Dr. O. M. Gilbert reported a case of Dr. C. W. Poley's to show the difference between functional and organic cause for convulsions.

F. R. SPENCER, Secretary.

The Boulder County Medical Society met Thursday evening, January 28th, in the Commercial Association rooms, at 7:30 p. m. Fourteen members were present. The meeting was called to order by President C. E. Giffin.

The paper of the evening was by Dr. Tom

Walker upon "The Newer Laboratory Tests for Syphilis, Tuberculosis, and Pregnancy, and the Functional Tests for the Liver." The evening was spent in reviewing and estimating the conservative value of these tests.

F. R. SPENCER,
Secretary.

MEDICAL SOCIETY OF THE CITY AND COUNTY OF DENVER.

The regular meeting of the **Medical Society of the City and County of Denver** was held on January 19, 1915; President W. W. Grant presiding.

The following committees were appointed by President Grant: Public Health and Legislation, Drs. J. W. Amesse, D. A. Strickler and H. R. McGraw; membership, Drs. W. Wiley Jones and T. R. Love; Directors of the Society, Drs. Henry Sewall and L. B. Lockard.

Dr. Moleen exhibited a case of paresis in a man of 56 years. There had been a specific lesion 27 years ago. His wife had died of paresis 13 months ago. The pupillary responses to light had been nil. He had had an apoplectiform attack in July, 1914, with aphasia and right-sided paralysis, and later, in August, he was given salvarsanized serum intraspinally. His condition was aggravated at first. Later, after a second injection there was marked inprovement which had continued to date. Left pupil now responded and the general condition was good. Discussed by Drs. Hillkowitz and Arneill.

Dr. O. S. Fowler read a paper entitled, "A Plausible Etiology of Renal Hemorrhage, Usually Called Either Essential Hematuria or Renal Varix." Discussed by Drs. Lyons, Howard, Tennant, Spitzer and Hillkowitz.

A laboratory cabinet for office use was shown by Dr. Carmody.

Dr. Stahl exhibited his modification of the McCadsky Sero-Salvarsan apparatus.

H. R. STILLWILL,
Secretary.

The regular meeting of the **Medical Society of the City and County of Denver** was held on February 2, 1915, Dr. W. W. Grant presiding. Dr. G. M. Anderson presented a case of melanosarcoma in a boy of 13 years, involving the plantar surface of the right foot. It started from a pigmented mole which had been scratched by a piece of wire. A growth about the size of an egg was removed from the foot six weeks ago; also enlarged glands from the right groin. The enlargements in the groin are now returning. A specimen of the growth was examined by Dr. Hill, who pronounced it malignant.

The resignation of Dr. G. H. Stover as a member of the society was read and accepted, and he was then elected an honorary member of the society.

Appreciations of the life of the late Dr. Samuel A. Fisk were read by Drs. Edson, Sewall and Rogers.

A paper was read by Dr. T. E. Carmody entitled "Histopathology of the Faucial Tonsil," and photo-micrographs were shown.

A paper entitled "Toxic Goitre" was read by Dr. F. C. Buchtel, and a lantern slide demonstration of the same was shown by Dr. Whitman.

H. R. STILWILL, Secretary.

LAS ANIMAS COUNTY MEDICAL SOCIETY.

The regular monthly meeting, which was also the annual meeting, of the **Las Animas County Medical Society,** was held January 1, 1915. President L. T. Richie, pro. tem., in the chair.

The following members were present: Doctors Jaffa, Lee, Ogle, Richie, J. G. Espey, Presnall, and Freudenthal.

The annual election resulted as follows: Alfred Freudenthal, President; Harry Lee, Vice-President; C. W. Presnall, Secretary, and William M. Ogle, Delegate to the State Convention. On the motion of Dr. Presnall, Dr. Ogle was given a vote of thanks for his untiring zeal in the interest of the welfare and advancement of the society.

Dr. Freudenthal read a paper on the Diagnosis of Duodenal Ulcer, and laid special stress on the importance of the duodenal bucket as an aid in diagnosis. The paper was discussed by most of the members present and brought out some very essential points.

A committee was appointed with power to act, to arrange for a banquet in the near future.

The President announced that an endeavor would be made to have some prominent medical man with us at as many meetings as possible in the future. It was agreed that a special effort would be made by those present to endeavor to secure a better attendance at the meetings, and henceforth there will be at least one paper read at every meeting. Dr. Ogle was appointed to furnish a paper for the February meeting.

The society adjourned to meet February 5th.

C. W. PRESNALL, Secretary.

PUEBLO COUNTY MEDICAL SOCIETY.

The **Pueblo County Medical Society** held its annual meeting on January 5, 1915, President Singer presiding.

Dr. Singer delivered the annual address of the President.

The following officers were elected: President, Dr. C. F. Taylor; Secretary, Dr. J. H. Woodbridge; Librarian, Dr. D. E. Hoag; Censor, Dr. J. A. Black; Delegate, Dr. A. J. King; first alternate, Dr. Fritz Lassen; second alternate, Dr. C. V. Marmaduke.

Dr. C. F. Taylor took the chair and there was then a general discussion on many matters pertaining to the good of the Society.

The President appointed the following committees: I.—Program and Scientific Work—J. H. Woodbridge, W. T. H. Baker, and D. E. Hoag. II.—Membership—W. F. Singer, A. B. Lockridge, and W. H. Baker. III.—Publication and Library—W. W. Bullette, J. J. Pattee, and H. A. Lord. IV.—Legislation—M. J. Keeney, T. A. Stoddard, and J. L. Schwer. V.—Entertainment—E. A. Elder, F. M. Heller, and Wilbur Lucas. The Secretary-Treasurer submitted his annual report. It was moved and carried that the question of holding weekly meetings instead of bi-monthly meetings be referred to the Program Committee for a report with recommendations at the next meeting.

J. H. WOODBRIDGE, Secretary.

The **Pueblo County Medical Society** met in regular session, January 19, 1915. Dr. C. F. Taylor presiding.

Dr. Fritz Lassen presented two clinical cases, one of Polypus in the Naso-pharynx; another of Sarcoma, whose origin was probably in the Naso-pharynx, but at present markedly involving the structures of the neck.

O. L. Whitson, D. D. S., delivered the paper of the evening on "Oral Hygiene," illustrating his paper very appropriately with lantern slides. The paper was thoroughly discussed and the

Society voted Dr. Whitson their thanks for his courtesy. Also to Mr. Henry Meschon of the C. F. & I. Hospital were extended the thanks of the Society for providing lantern machine.

The Program Committee made their report concerning the program for the ensuing year.

A communication from Dr. J. G. Wolf of the City Health Department concerning rules applying to school children who have been absent on account of illness from school for five days or more, was read. The communication was received and filed, and the Secretary instructed to pledge Dr. Wolf the Society's support and cooperation in the matter.

The matter of the new fee bill was taken up. The Society resolved itself into a Committee of the Whole, with Dr. Robe as chairman and Dr. F. M. Heller as secretary, to consider the various items in the bill. The Society adjourned till January 26, to continue the work of the committee. J. H. WOODBRIDGE, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

The regular meeting of the society convened at the offices of Dr. Melville Black, December 19th, 1914, with twenty-one members and six visitors present.

The Secretary, Dr. Crisp, stated that because of the demands upon his time he could no longer undertake the duties of the office and he therefore resigned. Dr. Boyd was elected to fill the vacancy.

Dr. John A. McCaw was elected to membership.

Dr. Orendorff presented a man aged 61 whose vision had been failing for the past six years but had grown rapidly worse in the past few months. The ophthalmoscope disclosed atrophic nerve, and retina with marked chorioidal changes in each eye. Nothing explaining the origin of trouble could be assigned.

Dr. Coover showed a child one year old with left eye much larger than the right; history did not indicate buphthalmia. The cornea was hazy, anterior chamber shallow, pupil fixed and slightly dilated, and tension increased, and there was a yellow reflex from the posterior chamber. Probable diagnosis, glioma. It was the consensus of opinion that the eye should be removed.

Dr. Jackson reported on the case shown at the October meeting, in which the fundus appeared pushed forward, and stated that since October the tension of the eye had varied from 0 to 17 mm. No information was given by transillumination. The mass now appeared more pushed forward. Probable diagnosis, sarcoma.

Dr. Jackson presented the following case: Right eye injured in 1911 by a jet of water; fine opacities in anterior vitreous, fundus normal. Left eye injured in 1904 by steel; linear opacity in cornea, dust-like opacities in the lens with opacity of the central portion of the vitreous, fundus but dimly seen but appears normal, no evidence of foreign body. Under treatment this man's vision had improved.

Dr. Sedwick presented a man whose right eye had been penetrated by a large piece of iron; in its removal by the magnet, complications were encountered because of its size and position.

Dr. Strader showed a case with paralysis of the external rectus, the result of a fall from a telephone pole.

Dr. Crisp showed a woman upon whom he had done a sclerocorneal trephining a few days before for inflammatory glaucoma secondary to retinal thrombosis.

Dr. Black presented a woman for whom he had trephined each eye for acute glaucoma one year ago and who now possessed perfect fields, tension and vision in each eye: also a man in whom he had trephined both eyes for simple glaucoma; but little improvement in vision had resulted but the cupping of the nerve heads had all but disappeared.

Dr. Black presented a woman 56 years old with subacute glaucoma. Tension that day with the tonometer was 66 mm. Hg. Eserine having signally failed to alleviate the pain the doctor did a sclero-corneal trephining in the presence of the members.

Drs. Neeper, Ringle and others reported cases as they were suggested by those presented.

Dr. Bane demonstrated a sideroscope of his own devising which in addition to being an efficient sideroscope possessed the merit of being inexpensive.

E. T. BOYD, Secretary.

The monthly meeting of the **Colorado Ophthalmological Society** was held at Colorado Springs January 16, 1915, Dr. A. C. H. Friedmann presiding.

Dr. A. C. Magruder presented a girl five years of age, who two and a half years ago had received a penetrating wound of the cornea, iris and lens. Present condition: light perception, no anterior chamber or pupil; globe somewhat atrophic with elevated tension. In discussion a few favored an operation upon the iris, but the majority were in favor of enucleation.

Dr. Magruder also presented a man 72 years old who six years ago had fallen from a scaffold, and who claimed that this accident had damaged his vision and caused cataract. The fundus showed a condition apparently of old hemorrhagic retinitis, with cholesterin in the vitreous. There was no evidence of cataract.

Dr. E. R. Neeper presented a woman aged 55, with sclero-keratitis. The von Pirquet was positive, but he had not been allowed to give tuberculin.

Dr. Neeper also presented a case of glaucoma, with marked iris atrophy, in a woman of 62 years. Eleven years ago posterior sclerotomy had been done upon the left eye, and later an iridectomy, but the eye became blind. Eight years ago there was a severe attack in the right eye, with recurring attacks since, the last being in November, 1912. There was extreme atrophy of the left iris.

Dr. J. R. Robinson presented a woman of 38 years with kerato-iritis in the right eye; and whose left eye had been temporarily blind following post-partum hemorrhage.

Dr. J. A. Patterson presented a man aged 30 mill worker, who, after getting some powdered ore or dust into his right eye, had developed a central corneal infection with opacity and persistent inflammation. Recovery of the eye had been brought about by injections of solution of cyanide of mercury (with acoin) 1:2000, 1:1500 and 1:1000.

Dr. Friedmann showed a case of leucoma adherens in the right eye of a girl of 16, and a case of optic atrophy in a man of 70 years.

E. T. BOYD, Secretary.

It may surprise some of us to learn that the Münchener Medizinische Wochenschrift has found it necessary (September 29, 1914) to call upon German physicians to give up the use of foreign medical preparations and replace them by German ones. Sixty-four distinct important English and French preparations are listed, together wtih their German substitutes.

Book Reviews

Transactions of the American Surgical Association, volume 32nd, edited by Archibald MacLaren, M. D., Recorder of the Association, published by Wm. J. Dornan, Philadelphia.

This volume of 707 pages contains 44 papers which were read at the last annual meeting of the Association. Could the first President and founder of the Association, Samuel David Gross, inspect this volume, he would be struck with the remarkable progress in surgical science since his now famous remark that the surgery of his day was so nearly perfect that little advancement could be looked for in the future.

These papers cover a wide field, from "The Prophylaxis of Cancer," by Wm. J. Mayo, President of the Association, to "Experimental Operations on the Orifices of the Heart," by Alexis Carrel. Of course, such a volume made up of contributions from a body of men who stand at the very head of the surgical profession of America could not be uninteresting, and must of necessity contain many valuable suggestions. The pathetic note in all volumes of special society transactions, such as this, which come to us from year to year, is in the chapter on necrology. This particular volume conveys a sad message of unusual significance to American surgeons and surgery. It records the death of Maurice Richardson, Nathan Jacobson, Arthur Tracy Cabot, Roswell Park, and Joseph D. Bryant; an enormous toll of talent taken from one little association of only one hundred and twenty-five surgical fellows in one short year.

This volume is exceptionally interesting, because it contains a number of very important papers on the newer phases of the surgery of the heart, lungs and stomach. It also contains a number of excellent papers on cancer and surgery of the bones, and an extremely interesting and valuable paper by Wm. S. Halsted on "The Significance ofthe Thymus in Graves' Disease." This paper deals at length with the intricate problem of the internal secretion of many of the ductless glands. Taken as a whole, the volume contains many valuable contributions to modern surgical science. H. G. W.

International Clinics; a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, etc. Vol. IV, Twenty-fourth Series, 1914. Philadelphia and London: Lippincott Company.

This latest volume of the International Clinics contains twenty-nine original articles on a great variety of topics, including Abderhalden's Biological Diagnosis of Pregnancy, Painless Child-birth or Semi-Narcosis in Obstetrics, What Radium Can Do, Methods of Preparing and Applying Radio-active Substances, Home and Office Treatment of Inebriety, the Auscultatory Method of Blood Pressure Determination, Perinephritic Abcess Complicating the Post-partum, the Routine Administration of Ether in Measured Dosage and the Prevention of Severe Deformity in Pott's Disease. The volume is no exception to the excellent printing and illustrating which always characterize this series.

Fever: Its Thermotaxis and Metabolism, by Isaac Ott, A. M., M.D., Professor of Physiology Medico Chirurgical College, Philadelphia; member of American Physiological Society; ex-president of American Neurological Association, etc,. etc., of New York. Cloth; 166 pages; 14 illustrations. Price, $1.50 net. Paul B. Hoeber, 67-69 East Fifty-ninth Street.

These three lectures were originally delivered before the sophomore class of the Medico Chirurgical College of Philadelphia. They are a readable and careful review of the physiological and clinical aspects of the subject. The various theories of heat regulation are discussed, especially that of the author, first published in 1884, that the thermogenic center lies in the corpus striatum. The claim of Richet to have been the first to discover the thermogenic centers is refuted. A number of experiments upon animals bearing upon the location of the heat regulating center are described. Among the individual points discussed are the relation of the internal secretions to temperature, the question whether fever is beneficial or destructive, the peculiarities of malarial fever and the metabolic changes in fever. The essential importance of a correct appreciation of the significance of fever in the study and control of every form of febrile disease, render this monograph a very desirable addition to the library of every practitioner.

Lead Poisoning: From the Industrial, Medical and Social Point of View. Lectures delivered at the Royal Institute of Public Health by Sir Thomas Oliver, M. A., M.D., M.R.C.P., Consulting Physician, Royal Victoria Infirmary, and Professor of the Principles and Practice of Medicine, University of Durham, etc.; Late Medical Expert, Dangerous Trades Committee, Home Office (England). Paul S. Hoeber, 67 and 69 East 59th Street, New York, 1914. Price, $2.00 net.

Sir Thomas Oliver reminds us that no metal is more widely used in the arts and manufactures than lead, and that trades in which lead and its compounds are used will always be more or less dangerous. The book is intended for the general public as well as the medical profession, as the writer hopes that by arousing intelligent interest in the subject even more may be accomplished in the future than has been done in the past by way of compulsory or voluntary regulation of the conditions under which workers in lead are placed. A number of chapters of the work are taken up with the separate consideration of lead poisoning in special industries, as lead smelting, the manufacture of red lead and white lead, painting, the manufacture of china and earthenware, electrical accumulator works, printing and type founding, dyeing and glass making. The mechanism by which lead poisoning is caused and the symptomatology of lead poisoning are thoroughly considered. A separate chapter is devoted to the blood in saturnine poisoning and another to blue line on the gums. The subject of treatment is well covered. An appendix contains the factory and workshop orders of the English Home Office relating to lead poisoning. The book should find a ready welcome among those who wish for more complete information on the subject than can be included in the ordinary medical treatise.

Colorado Medicine

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Editorial Comment

THE SCIENTIFIC PROGRAM COMMITTEE HAS BEGUN THE CONSTRUCTION OF THE PROGRAM FOR THE STATE MEDICAL SOCIETY MEETING, TO BE HELD IN DENVER ON OCTOBER 5TH, 6TH, AND 7TH, 1915. MEMBERS OF THE STATE SOCIETY DESIRING TO CONTRIBUTE PAPERS WILL KINDLY NOTIFY THE CHAIRMAN, AND SEND TO HIM THE TITLES OF THE PAPERS WHICH THEY WISH TO PRESENT.

THE COMMITTEE COURTEOUSLY ASKS THAT ABSTRACTS OF THESE PAPERS, NOT TO EXCEED ONE HUNDRED AND FIFTY WORDS, BE SUBMITTED WITH THE TITLES OF THE PAPERS TO THE CHAIRMAN NOT LATER THAN JUNE THE FIRST.

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PROPHYLACTIC MEDICAL EXAMINATIONS.

During the past two decades the progress of preventive and social medicine has rivalled that of any other branch of medical science. Applied knowledge backed by educated public opinion, has within this time materially diminished our mortality and morbidity rates for such diseases as tuberculosis, typhoid and diphtheria. Coincidentally with this decrease in danger from the acute diseases of childhood and early adult life, however, there has appeared in the statistics an alarming increase in the morbidity and mortality due to the chronic ailments of adult life. Many of these latter conditions are of insidious onset and in their earlier stages amenable to cure or to material palliation; among them cancer, cardiovascular disease, and renal disease hold prominent places.

Hitherto preventive medicine has concerned itself very little with these diseases, but a practical beginning toward a solution of this phase of the public health problem has now been made. This has taken the form of periodic examinations of supposedly healthy individuals to determine whether insidious beginnings of disease, or predisposing causes of disease are being overlooked and neglected. Something over a year ago the Life Extension Institute was established in New York City for the purpose of supplying to such persons and corporations as wished it, periodic health examinations. The aims of this work and a brief review of some results accomplished are presented by Fisk in the Kentucky Medical Journal for February 1st, 1915. The examinations are planned to give consideration to the body as a whole, to habits and to personal and environmental hygiene. From the data thus obtained a composite picture of the individual in relation to his work is made. Slight physical impairments or errors of hygiene are reported to the applicant; if there is impairment requiring medical attention, the Institute, with the patient's consent, sends a complete report of the examination to his family physician. No diagnosis is made by the Institute, no advice regarding treatment is given, and the selection of an attending physician rests with the applicant. In a typical commercial group of 108 supposedly healthy individuals only three were found completely unimpaired, and impairments in sixty-six are classed as moderate to serious. The result is sufficiently startling, even though we note that what may seem relatively slight abnormalities suffice to bring an applicant into this class. Interesting also are the statistics of the examination of 4,000 insurance policy holders, of whom only 11 per cent were found unimpaired, while in 57 per cent the impairment is classed as moderate and in 2 per cent as serious.

Slade, writing in the New York Medical Journal for January 23rd, 1915, reports upon the examination of 696 employees of the Department of Health of New York City. The service was offered free to those who desired it and the figures given cover a period of four months. The age varies from 15 to 74 years, and in status the applicants range from laborers to high executive officers. Among 240 men and 456 women 33.3 per cent were in obvious need of medical advice and 24.6 per cent in actual need of treatment, while the number needing advice or treatment or both reached 44 per cent. The total percentage showing impairment of heart, lungs and kidneys was 21.1. These figures become the more striking when it is considered that the persons examined were in no sense selected groups, but probably fairly well represented the average health of any urban population. Beyond doubt competent advice and treatment instituted thus early will be life saving in some cases, life prolonging in others, and each such salvage represents a direct gain to the community.

These statistics constitute a strong argument for the value which might accrue from a widespread adoption of such periodic examinations. Any expectation of an immediate general acceptance of the plan is probably premature; for the public is scarcely prepared to regard such a periodic medical stock-taking as a sound investment. Nor is it certain that all members of the medical profession would at once prove adequate to such a responsibility. If the task of demonstrating the value of this supervision to individuals and communities is to avoid very serious opposition at the outset, examinations must be most thoroughly made and carefully considered. The plan is well adapted to trial by relatively small groups of individuals who are bound together by ties of common social or industrial interest, and for the present its development may wisely be allowed to follow along these general lines. The public mind is already keenly, if sometimes undiscriminatingly, interested in health matters, and if the plan proves feasible among these groups, above all if the number of remediable and important defects discovered in supposedly healthy persons proves, as seems certain, to form a rather high percentage, it should not be difficult to greatly enlarge the scope of this important branch of preventive medicine.

C. N. M.

A CONQUEST WORTH WHILE.

At a time when international deliberations over an astonishingly large area are being punctuated with the point of the sword, and the amenities of social life are buried, it is refreshing to note the spontaneous development, in this and other countries, of numerous humanitarian agencies bent on mitigating the horrors of war and of the destitution following always in its wake.

Thus the work of the Red Cross Service, the American Ambulance Hospital, and the Belgian Relief Committees, especially, have attracted world-wide attention and commendation. But we are apt to overlook in the tumult of war those more unassuming philanthropies, which in the final analysis may prove of more lasting benefit to humanity than the alleviation of suffering among soldiers or their families.

In illustration of such comprehensive and carefully matured beneficence we have the recent apportionment of funds from the almost limitless resources of the Rockefeller Foundation, to be expended in the campaign against hookworm disease in certain Republics of Central and South America and in China.

The marvelous results obtained from the organized efforts of the Hookworm Commission in the United States attest fully the comparative ease of eradication and the benefits immediately realized. Probably no other disease, in the infected areas, contributes so heavily to the arrest of physical and mental vigor as uncinariasis. It is directly responsible for diminished productiveness in many walks of life, and it furnishes everywhere, in the tropics and subtropics, an economic problem of far-reaching importance. Assuredly, the abundant means of the Foundation could scarcely be directed in more inviting channels than those leading to the sanitary redemption of peoples whose potentialities for good are paralyzed by ignorance and disease.

This enterprise constitutes a mission of the highest order, and its work will be followed with sympathetic interest by all who believe that preventive medicine is the keynote in social regeneration. J. W. A.

WASSERMANN EXAMINATIONS BY THE STATE AT COST.

Few states of this Union have so conspicuously shown the way in social and educational reform as the state of Wisconsin. It is in harmony with this fondness for new departures that we are now informed that a Wisconsin state institution will undertake Wassermann examinations at a minimum cost for physicians throughout the state. The recently established Psychiatric Institute at Mendota is equipped with a laboratory having facilities for making the test on a large scale. Dr. W. F. Lorenz, the director of the institute, argues (Wisconsin Medical Journal, February, 1915) that the best care of insanity is prevention; that syphilis has been shown to be responsible for from ten to twenty per cent. of all cases of insanity; that the prevailing cost of five to ten dollars for Wassermann tests is almost prohibitive in a large number of cases; and that these cases are so situated socially that, if syphilis is not adequately treated and late manifestations develop, they will ultimately become inmates of state institutions. He especially emphasizes the significance of the Wassermann reaction as indicating the success or failure of curative treatment. "At a cost of five or ten dollars, the average patient refuses these most valuable and indispensable tests during a period when he feels perfectly well. In fact the physician hesitates to suggest the test because of the cost in the instance of a patient with limited income. . . . In this plan we have in mind only those who cannot afford private laboratory tests."

The Psychiatric Institute will undertake the examinations at a charge of a dollar and a half; and, if a sufficient number of examinations are requested, this fee may be reduced to one dollar. The plan is to supply the physician on request with a sterile hypodermic syringe of a suitable kind, sterile needle and vial or Wright's capsule; the attending physician to secure the blood or spinal fluid and return it through the mail. The information requested with the specimen becomes a record of the Institute and not a public record. Lorenz estimates that at least one hundred and twenty cases of preventable insanity are admitted to the state institutions every year, making an expenditure of approximately $100,000 in five years, the average duration of life after admission. Every physician who cooperates in the plan now proposed will therefore become a worker in the field of preventive medicine, and will contribute to the reduction of a great burden upon society.

THE ROCKEFELLER INSTITUTE AND WAR SURGERY.

To its beneficent work in near and remote corners of the earth, "for the protection of the health of the public and the improved treatment of disease and injury," the Rockefeller Institute for Medical Research is now adding special study of the surgery of war near the battle line in France. At the outbreak of the present war Dr. Carrel, the Franco-American physician, whose work on the surgery of blood vessels and nerves is so well known, was spending his vacation in France. He immediately offered his services to the French government, and was detailed to the military hospital at Lyons, where by applying his special methods he was able to save limbs which would otherwise inevitably have been lost. He has now been stationed at Compiègne, where in a hospital with accommodations for about one hundred patients he will be free to perform his characteristic operations in transplanting tissues, blood vessels and nerves. He will have associated with him in the research work the distinguished chemist, Dr. H. D. Dakin. The Rockefeller Institute is equipping Dr. Carrel's hospital with complete apparatus for research in the bacteriological, chemical, and surgical conditions which may arise. The Rockefeller Foundation has voted an appropriation of $20,000, to be used under the direction of the Rockefeller Institute in furthering medical research work under war conditions.

Original Articles

THE THERAPEUTIC IMPORTANCE OF THE MENTAL ATTITUDE OF THE PATIENT.*

EDMUND J. A. ROGERS, M. D., DENVER.

The evolution of a new point of view respecting mental influences in health and in disease is apparent to all observers. We see it in the rapidly changing attitude of the medical profession and of the general public, as well as of the medical press and of general literature.

It has always been recognized that the confidence and co-operation of the patient were generally essential for success, but the ful importance of the fact is only now beginning to be understood; indeed the scope of the question ocn not now be estimated.

If an attitude of confident expectancy in the patient be the most essential element of success in the practice of medicine, the ability to excite this attitude must necessarily be of the greatest importance for medical success, and it therefore becomes scientifically and ethically necessary that we, in as far as possible, understand the processes of mental activity in order to promote this state of mind.

We cannot yet definitely assert to what extent states in consciousness and subconsciousness influence the activities of the tissue cells, or to what degree those deepest physiological processes which we usually describe as automatic reflexes and physical adjustments may be modified by the mental attitude.

The report made last May,[1] after long investigation by the joint committee in England, of leading medical men and prominent theologians, confirming the efficacy of mental treatment and qualifying its use, has done much to enlighten the profession.

Theories of mental control are constantly finding new advocates even where they are least to be expected. Last year Sir Thomas C. Clouston, the Edinburgh Nestor of psychiatry, published an article[2] under the title "Mind Cure from a Scientific Point of View," in which he says that "the brain is the controlling organ not only of the mind, but of the whole body, its master in movement, sensibility, nutrition and general health." He states that through the mind glandular secretion is stimulated, pain, paralysis and disease are produced, resistance to infection is lessened and immunity acquired.

He quotes John Hunter as saying: "As a state of mind is capable of producing a disease, another state of mind may effect its cure."

At about the same time Dr. D. F. Harris, of London University, now Professor of Physiology at Dalhousie University, Canada, and formerly of Aberdeen University, Scotland, published a paper[3] under the title "Consciousness as a Cause of Neural Activity," in which, after a clear and direct discussion, he concludes "that consciousness, how we know not, can be a cause in as full and perfect a manner as any other cause of which we have experience."

Trophic action is the term applied to that efferent energy which is necessary for the preservation of health and for the function of repair in the tissues. If the motor nerve to a part be destroyed, the nutrition and reparative power of that part are impaired until this trophic energy finds a new course. There is, therefore, an activity in the higher centres which affects the activity of the tissues. Many investigators and clinicians have demonstrated, by practical experiment and experience in direct suggestion, hypnosis, hysteria and other mental conditions that, through consciousness the nutrition, the circulation, and the sensory activity of a part can be modified. Therefore, through consciousness this trophic energy, and so the general condition of a part, can be influenced.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

But if consciousness acting in and through the nervous system is a constantly active cause affecting the physical activities of the tissues, we should plainly see in ourselves, and in others, the direct influence of states in consciousness. I believe that such an influence can be demonstrated to be constantly active, but in order to properly interpret it we must have some comprehension of the processes of effective mental action.

I shall very briefly outline some of the principles underlying these processes: Experience of the past, ideas and sensations that have been presented to the individual consciousness, remain thereafter actively present in the mind as potential, impulsive elements. It is possible, of course, for only an infinitely small proportion of these elements to be individually present in full consciousness at any one moment in time, but grouped and arranged through their associations into complexes, constellations, etc., they fall below the threshold of ordinary consciousness and become co-conscious or unconscious potential activities; indeed such submerged complexes, while still potentially effective, may, from many causes, become so deeply buried as to be lost to ordinary recollection.

These accumulated and generally subconscious activities result in the compounding of what we may term the mental attitude, and this mental attitude is the effective agent of consciousness, which in its functioning manifests the direct influence of past experiences. These potential centres may be stimulated into functional activity through the recurrence of some previously experienced ideational or sensory impression which, through accidental relationship, misdirected attention or direct volition became associated with the special submerged complex, and now acts directly to arouse its energy.

The relationship between the stimulus and the functioning center is associational, and is not due to similarity of content; indeed, the character of the two may be directly opposed. And though the stimulus may often be acutely conscious, the functioning complex usually remains deeply submerged, while the effect from this arc of activity is generally a very apparent reality. The condition of mind or body so produced by this arc of activity tends in some measure to correspond to the original ideas composing the functioning complex, but very often the course of the efferent energy is greatly diverted, and so the cause of the resulting condition is frequently difficult to analyze.

Thus we discover that it is not the present conscious thought that directs the creative energy of the mind, but this deeper and more complicated mental attitude. The mental attitude constantly varies as its composition changes, but it tends to become more and more fixed and stable in its influence and more and more automatic in its action.

In all this we find the key to the cause of most of the subjective occurrences of life: to character, to habit, and to the other elements of personality. Thus we can see how a submerged complex is frequently the cause of definite abnormal conditions of mind and body, and how forgotten and innocuous incidents in the past have become, through the law of the association of ideas, the effective initiating agents of serious pathological condition.

In this way some one of an infinite variety of ideas concerning life, health, or disease may easily become the dominating element of a constantly functioning complex. For example: a complex may evolve about some idea of ability, of power of self-control, or some fear of disease or failure, some early acquired prejudice or antagonism, or some accidentally aroused antipathy. Any such complex may constantly functionate, or may at any time be aroused by a stimulus effective through association, and any such mental atitude may become active while the relationship between the stimulus and the effective idea remains quite unrecognized, and indeed unknown in consciousness.

Pathological conditions originating from submerged ideas are so common in daily clinical experience that it is unnecessary in our limited time to specify cases. Not only do mental diseases begin in this way, but many physical disorders are the direct result of abnormal mental attitudes. Thus in submerged complexes we often find the causes of disturbances of circulation, digestion and respiration, and of many convulsive and spasmodic conditions, such as asthma, hay fever, diarrheas, nauseas, various neuralgias and other disorders.

Many will remember the case of convulsive attacks caused by such a buried complex in a New York street Arab, reported by Dr. Sidis.[4]

Owing to the perversion of the effective efferent energy the result of this submerged activity is very often directly opposite to the suggestion apparent in consciousness. Thus a person who is constantly affirming his freedom from the fear of or danger from some certain condition, will often easily develop that very condition, for the ever-present idea shows an ever-present subconscious fear of the condition, and so his mental attitude is not one which inhibits the condition, but one of suppressed fear of it, and this fear is the effective complex. The fear may have become implanted by some incident long forgotten.

On the other hand, we see under many different associational conditions the beneficent trophic effects of subconscious activity aroused by mental and physical stimuli, which in themselves have no causative ability. Let me state some of the common examples of this: A cleverly placed advertisement arouses an attitude of confident expectancy in a sufferer, and as a consequence of his taking an impotent nostrum the exercise of a wonderful subjective reparative energy is aroused in him. Or, the supposed virtues of some mineral spring are impressively presented, and the efficiency of the aroused recuperative energy is often further augmented by the physical effort and sacrifice entailed in reaching this spring.

A new remedy inspires the mind of the physician with expectant hope, he in turn inspires his patient, and an astonishing result is obtained. How often do we see a remedy, most effectual when administered by one physician who inspires confidence, absolutely inert when given by another less inspiring.

I doubt if any philosophically minded man—no matter what may be his religious views—ascribes the authentic and phenomenal cures derived from religious shrines to direct miracle! Must they not, in all reason, be due to the arousing of latent subjective energy subconsciously acting under some well established natural law? Are the gyrations of the barbarous medicine man or the incantations of the supposed witch the direct cause of the results that are often produced, or are the results due to the subjective energy aroused in the sufferer by these absurd procedures?

Mesmer relieved and cured a multitude, until the theory of an emanation of animal magnetism was exploded.[5]

Perkins' tractors cured thousands on this continent and in Europe, until their therapeutic inefficiency was exposed.[6]

We constantly see warts removed, rheumatism cured, palsies and neuralgia relieved by some simple and often absurd process which catches the attention of the subject and changes the controlling mental attitude.

Many cures wrought by these various strange measures are well authenticated, and it is a suicidal mistake of our profession to shirk analyzing them. We gain nothing by hiding behind such words as "bosh," "fraud," deception," or "humbug," on the one hand, and "hysteria" or imagination" on the other.

The study of these phenomena and the application of the scientific principles underlying them, are the science of psychotherapy. Every physician practices this science, for we all recognize that all our knowledge and all our work will be practically ineffectual if we cannot gain the confidence of the patient either in ourselves or in our work or in our remedies. Psychotherapy is, therefore, not a new field in medicine. It is the oldest field of all, as its principles alone survive the constant change in medical and surgical procedure, though it is in no sense opposed to the scientific application of medical and surgical agencies, but increases their beneficial efficacy.

Scientific psychotherapy is still in the experimental stage. We can, however, state clearly these conclusions:

1. That many abnormal physical and mental conditions are due to injurious mental attitudes produced by the presence of irrational complexes.

2. That the important step towards relief is to discover, through mental analysis, the nature and the origin of the injurious complexes.

3. That to bring about relief from the unhealthy conditions, it is necessary to dissociate these abnormal complexes from the normal elements of consciousness, to disintegrate them, and to reintegrate their elements in association with health impelling ideas.

No two minds act on exactly similar lines, and it is, therefore, impossible with our present knowledge to lay down any definite rule for procedure that can be followed in every individual case.

The food of the mind is the subjective ideas and the objective sensations reaching it, and the first principle must be to see that through consciousness the mind of the patient receives helpful, healthful food. The elements which constitute this food are popularly known as suggestions, and we cannot escape the fact that we are constantly giving effective suggestions to our patients. We must, therefore, study to make these suggestions helpful and healthful.

If we have the willingness, we can soon learn to add to the indirect and often unintended suggestions which we are of necessity constantly making direct, forceful, constructive suggestions which will be of material and immediate benefit.

Indeed we shall find that the majority of our patients will meet us more than half way in this, and either by their own volition or through our suggestive help, assume that attitude of relaxed expectant attention in which the latent powers of the mind can best be aroused and regulated.

Now, gentlemen, I am not in this disparaging or condemning those wise scientific procedures in medicine and surgery which we all strive to use for the benefit of our patients. The use of these, as well as a knowledge of the human body in health and disease, is necessary, but I urge you not to stop with them. The human body is a machine impelled and directed by a mind, and we must strive not only to understand the mechanism of the body, but also to comprehend the working of the mind, if we desire to do the best possible. That is, the greater our knowledge of medical psychology, the greater our success in our work and the greater the service we are able to render to our confiding patients.

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References.

[1]Report published by MacMillan & Co., London, 1914, p. 56. Reviewed in many medical journals. On the committee the following well-known medical men are named: Sir Dyce Duckworth, Sir Clifford Allbutt, Dr. S. Bonsfield, Dr. C. Buttar Dr. F. de H. Hall, Dr. T. B. Hyslop, Dr. H. C. Gordon Mackenzie, Dr. J. A. Ormerod, Sir R. Douglas Powell, Dr. H. Tooth, etc.

[2]Quarterly Review, Jan., 1913, p. 118.

[3]Hibbert Journal, Jan., 1913, p. 393.

[4]"Symptomatology, Psychognosis and Diagnosis of Psychopathic Diseases," by Dr. Boris Sidis. Badger, 1914, p. 366.

[5]Encyclop. Brit., Ed. xi, Vol. xviii, p. 178, and Vol. xiv, p. 202.

[6]"Hypnotism," by Bramwell, 2nd ed., p. 287.

PSYCHOTHERAPY: REPORT OF CASE.*

E. W. LAZELL, M. D., DENVER.

To those interested in psychanalysis the following case will prove of interest because of its many unusual features. If the content of the repressed constellations does not justify the report, it will at least add to the number of cases successfully treated by this method. The original notes covered forty-one sheets of nine by fourteen inch paper, closely written. This mass of material has been abridged as much as possible.

The patient was first seen on July 18, 1812, in consultation with Dr. Peck of Eaton, Colo. The history was that the patient, a rather fleshy woman of 49, had received a blow on the cervical spine by being thrown from a buggy when a girl. Since that time there had been pain and numbness in the left arm and leg, and for the last nine years a spasmodic twitching of the left arm. Examination showed that the pectoralis major and minor and the serratus magnus were in violent contraction, the rhythm being about twelve to the minute. The lesser muscles of the shoulder and arm contracted somewhat. None of the muscles of the arm, forearm or hand were involved. The contractions were so violent that she had to be held on the bed to keep from falling off. The arm would be adducted to the body with such force that it was difficult for her to breathe, and at times she was somewhat cyanotic. The intercostal muscles and the diaphragm contracted at the same time. The whole movement resembled an enormous hiccough limited to the left side, with violent adduction of the left arm, slight elevation of the shoulder and lateral rotation of the head. The expiratory grunt could be heard in the next room. There was no atrophy of the muscles or fibrillation, and sensation was intact in all its qualities. Careful examination failed to disclose any signs of organic disease of the nervous system. The apex of the lung was normal, there was no cervical rib, and the spine, shoulder joint, and cervical glands were normal. A tentative diagnosis of hysteria was made.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

An X-ray of the shoulder and cervical spine was negative. The delay occasioned gave time for repeated examinations, but no new factors were added. "Hysteria" was finally the dictum. Finally, because the functional neuroses should be diagnosticated only after having exhausted all other possibilities.

The patient was not told of the conclusion, but that in a few days she would be taken to the office, where one application of electricity would stop the spasm. On succeeding days she was told the same thing as though it were forgotten the day before. On the fourth day the brother who had arrived in town that day and had not been informed of the facts, manifested some displeasure at the delay before the patient, and asked that she be brought to the office in an ambulance, thus forcing the issue. She was accordingly brought into the office on a stretcher, carried to the treatment room and held on the table while the galvanic current was applied, as strong as she could bear it. In a few moments the spasm ceased. She remained under my care until August 26, during which time the attempt was made to build up her general condition.

The relatives and friends believed a miracle had been performed, but the physician who brought the case was told that it was little short of charlatanry, that the true condition was hysteria, and that the condition would probably return under stress. She returned home, and remained free of the seizures till January, 1913, when she had an unfortunate quarrel with a neighbor. She returned to Denver, when one application of the galvanic current again stopped the spasm. Both she and her brother are very intellectual persons, and were told the real nature of the case. The psychanalytic method was explained. She returned on September 5, 1913, prepared to stay a year if necessary to effect a cure.

A most careful and complete physical examination and history of the case were made at this time, the salient points of which are given.

Miss B. W., never married; housewife, born in Canada, age 49, complains of spasmodic twitching of the left arm and chest of nine years' duration, with numbness and pain in the left arm and hand extending down to the left toe. Periodic headaches with nausea and vomiting recurring regularly every two weeks.

Family history: Mother, Scotland, died at 42 of phthisis, five children, none born dead, no miscarriages, phlegmatic temperament. Never suffered from hysteria, epilepsy, neuralgia, rheumatism or neurasthenia; not alcoholic, never insane. Father, Scotland, living at 83, slight rheumatism, but no other of the conditions enumerated for the mother. Parents not related. One brother died of probable tuberculous meningitis at 4. One older brother tuberculous. None strong. One probably has neurasthenia. Sisters, none.

One aunt probably tuberculous, mother's brother died of tuberculosis, two other members tuberculous, three cousins died of apoplexy, one aunt had Bell's palsy. No imbecility, drunkenness, epilepsy, suicide, peculiarities, or criminal tendencies in their relatives. None subject to drug addiction.

Childhood: Not well as a child. No convulsions, chorea, delirium, somnambulism or bed-wetting. Cried a great deal as a child, does not know why. Menstruation at 12, normal, regular, is passing menopause now. Nervous condition at puberty believed to have been good, always successful in school. Measles at 4, diphtheria at 21, chicken pox and pertussis. Suffered from severe gastric hemorrhage at 33, believed to have been due to a tuberculous ulcer of the stomach. Had diplopia once when glands of neck were swollen. Paresthesias of the left side, worse at night. Dyspnea on exertion for days and weeks at a time. Feet are often swollen and pit on pressure on examination.

Habits: Never uses alcohol, is devout Christian, has never had leucorrhea, ulcers on the shins, alopecia, eruption or sore throat.

Alimentary: Digestion fair, constipated, slight hemorrhoids, tongue clean, vomits at onset of attacks. No abdominal pains.

Respiratory: Negative.

Skin: Negative.

Genito-Urinary: Occasionally has to get up at night to urinate, has had some attacks suggestive of hysterical polyuria, and thinks that she once had cystitis.

General Appearance: Good, well nourished, neat, weight 147 pounds, her best.

Attitude: Confident, retiring.

Gait: Normal, except that she walks as though afraid of hurting left shoulder.

Sphincters: Normal.

Examination: Eyes, normal except for slight irregularity in outline and inequality. Excessive reaction to light. Movements normal. Fundus normal. Field could not be taken on account of spasm.

Ears, Nose, Mouth, Throat: Normal.

Memory: States that memory is poor. Analysis shows that it is extraordinarily good. Never suffers from loss of consciousness, has been harassed by phobias, a sense of dread, thought that she could never be well, and agaraphobia. Had been depressed at times, but never suffered from delusions, or other profound mental errors. Ethical feelings excessively developed, moral convictions profound, attention keen, idea associations unusually deep, rarely superficial, intensely religious nature.

Stigmata, none; urine, negative; blood, normal; Wassermann, negative.

Reflexes throughout the whole body generally exaggerated. This especially true of the knee-jerks, triceps and plantars. Pharyngeal present.

Trophic: Atrophy none, fibrillation none, skin nutrition normal.

Chest, abdomen and spine, normal. Shin bones not rough, no pigmented scars or ulcers.

Sleep: Falls asleep and awakes with great regularity at 2:30 a. m.

Injury: Was thrown from a buggy and struck on head and shoulder; unconscious a few minutes, had a severe headache for about a month, pain in left side ever since.

The analysis of this case was approached with the full co-operation of an intelligent patient. The entire history of the patient's past was gone over in great detail. Every event of importance was noted and the patient was instructed to write down her dreams on awakening every morning. Many of these dreams were interpreted and were found to relate to religious or sexual complexes. In general the dream interpretation was disappointing, with the exception of one. She dreamed that she was in a large room adjacent to another large room, that three women whom she thought she recognized as acquaintances in Eaton, were in this room. These women seemed to have a foreign cast of countenance. They were busy arranging mourning clothes, veils, etc. The vivid part of this dream was the mourning clothes. I absolutely failed to interpret this dream, because it was difficult to get her into a free association state on account of the spasms, which occurred so often and caused her so much pain that her attention was not easily diverted from the spasm. Discussion of the dream seemed to increase the spasm, and while it was certain that we had touched on a repressed constellation, it was laid aside for future use. It will be explained later.

The test words of Jung were then used, those giving a long reaction time or having suggestive answers being noted from the list. The reproductions were invariably the same as the first answer. The test words are shown in heavy type, each one being followed by its reaction time in seconds, and the answer. Fractions of seconds are for the most part omitted. The explanations and determinatives of some answers are noted in parentheses, also the conclusions as to the nature of the complex.

Water; 5; ocean. (Was in bathing, child grabbed her, thought it was an animal.—Fear.) **Long**; 5; years of suffering. **Ship**; 7; ocean steamer (Religious; met an uncle who was intoxicated). **To pay**; 10; penalty (Religious). **To sing**; 4; father singing hymns (Religious—Aunt told her that she could not sing well). **Friendly**; 5; to everyone, even those who had wronged her. (Religious. Analysis of this showed that it was the cause of the return of the spasm the last time.) **Cold**; 4; hands. (Referred to the time when she had diphtheria. Creepy feeling suggesting porcupine quills, when she had the sensation that the nerves of the shoulder were sticking out uncovered.—Sexual). **Dance**; 5; never. (Sexual, perhaps religious. Has an aversion against.) **Pride**; 3.5; "goeth before a fall" (Religious). **Table**; 5; table. (Thinks of the way the man was lowered through the roof to Christ, while she came up the elevator shaft to me. Notice transference.) **Angry**; 5; "Little children, you should never let your angry passions rise," etc. (Religious.) **Needle**; 3.5; sowing seeds of kindness. Camel through eye of needle. **Lamp**; 4; "My word shall be as a lamp unto your feet," etc. **Bread**; 3; is the manna from Heaven. **Rich**; 6; man, eye of needle. **Tree**; 3; "I am the tree of life." **To prick**; 9; pin. (Father stuck a pin into her buttocks during prayer. Religious or sexual.) **Mountain**; 4; rocky. (Always suggests lightning. Later found that lightning always suggests the halo of light around Christ.) **Salt**; 4; has lost its savor. **New**; 5; goods (referring to new life after religious cleansing). **To pray**; 4; health from prayer, pray without ceasing. **Foolish**; 4; virgins (foolish and wise virgins). **Despise**; 7; no man. **Birds**; 4; of the air. **Book**; 3; Bible. **Unjust**; 3.4; he that is unjust. **Hunger**; 4; hunger and thirst after righteousness. **White**; 4; whiter than snow. **Lead pencil**; 5; drawing (unexplained, perhaps sexual). **To marry**; 5; or be given in marriage (sexual). **Glass**; 7; broken looking glass (never marry). **Carrot**; 4; carat of gold (perhaps sexual). **Narrow**; 2.8; straight and narrow path. **Fear**; 5; "Fear no evil". **To kiss**; 5; love. **Bride**; 7; never to be one. **Pure**; 3; pure and holy life. **To choose**; 3; whom ye will serve. **Ridicule**; 5; had been sometimes unjustly ridiculed. (Pride. Father had pitied and ridiculed her as little child.) **Bird**; 7; stork.

To the psychanalyst many of the answers will have more meaning than I shall here point out. When we study these answers we find that out of a hundred test words forty were answered with a long reaction time; further that of these forty answers with a long reaction time one is a complex of fear, two remain unexplained, five are religious or sexual, seven are distinctly sexual, and twenty-seven are religious.

"Without some disturbance of sexual life no neurosis is possible." Freud's idea of the sexual does not correspond with sensual. He uses the word sexual to include all our love fancies. Since religious beliefs satisfy one of our love cravings in this sense, the conclusion was reached that in this case these religious complexes were in reality sexual, in the Freudian sense, and more than that, that they were connected with this patient's sexuality in the ordinary sense.

The manner in which the seizures were brought on was now investigated. It was found that she would first have three severe, agonizing lancinating pains in the lower left chest, that there would then appear an area of hysterical blue edema just outside and below the left nipple, that she would then develop nausea and vomiting and a severe headache, and that then the twitchings would develop in their greatest intensity, to die out gradually during the next ten days. This cycle was repeated every two weeks.

There seemed to be no explanation of the pains and the edema at this time, so the nausea was investigated. She was asked if she was ever nauseated at any other time. She told me that she was nauseated whenever she thought of her cousin and step-cousin. Analysis showed the following: When she was a little girl she was ill. The doctor came and had her stripped, placed her across his knee and applied a fly blister to her abdomen. She cried, and her father tried to comfort her, saying that she was not going to be hurt. She explained to me she was not afraid of being hurt, but that she was chagrined and mortified at being thus exposed. Several days later the physician came to puncture the blister and remove the serum. While she lay across his knee in the same position as before, these two cousins came to the house. Her brother called to them "to come in and see the big blister on B——'s tummy." She was greatly mortified and was never able to see these boys in later life without great aversion, nor to think of them without nausea; a pure case of transference of the affect of shame to nausea. This further convinced us of the psychic origin in her case and we then turned to a more careful study of her sexual life.

As has already been shown, she was of an intensely religious turn of mind, a maiden lady who, after her mother's death, had decided to devote her life to the care of her brothers. Along with this intensely religious temperament she was over well sexed and had been rather erotic. Whenever these erotic ideas would occur to her she would think that she was never to marry, that she was to remain single and that this was her cross. She would repeat to herself the first, second and twenty-third Psalms, the last of which is most suggestive to an erotic person. "The Lord is my shepherd; I shall not want. He maketh me to lie down in green pastures; he leadeth me beside the still waters. He restoreth my soul; he leadeth me in the paths of righteousness for his name's sake. Yea, though I walk through the valley of the shadow of death, I will fear no evil: for thou art with me; thy rod and thy staff they comfort me." Freud has shown that bananas, carrots and all long or sharp objects are frequently symbols for the penis. This was followed by a sort of religious trance in the order of a day-dream, during which she had many religious ideas. She spent hours in this condition.

At this time she was nearing the approach of her periodic mental cataclysm. On Saturday, October 25, she came to the office and went easily into the hypnoidal state. The moment was opportune, and while in this free association state she solved the riddle of her mental sphynx, the story of which is so wonderful that it makes one gasp with astonishment. Briefly it is as follows: When she became erotic she would say over and over to herself the Psalms as above. These further excited her sexual and probably her sensual emotions. She would then relapse into the day-dream state which Freud has shown to be a sexual state, the terminus of which is a condition analogous to sexual orgasm. She would say to herself that her cross was never to be married, never to have her sexual passions satisfied. This would suggest to her the sacrifice of Christ and she would compare herself with Christ and finally in her own suggestible mind, in her day-dream, live over the agony of Christ on the cross, playing the part of the principal character herself. The three lancinating pains felt in the left chest referred to above represented the piercing of the side of Christ and the two robbers on the crosses beside him, the hysterical blue edema represented the blood and water that flowed from the side of Christ, and the spasm was the converted hysterical symptom. The three women in the dream referred to were the three Marys draping themselves in mourning to go to the tomb of Christ.

To say that the writer was startled would be putting it mildly. There was no doubt that the real cause was uncovered. She was abruptly brought out of the hypnoidal state by my hastily excusing myself from the office, saying, "That is enough for today." The next day was Sunday and she was not seen. Monday she was too ill to come to the office, and Tuesday morning early the writer left with the militia for strike duty in Walsenburg, Colo. She was not seen again until the following January. Hence it is not possible that she was given any suggestion responsible for the result. When she was next seen she told me that she had not slept for three days and nights after the seance on Saturday; that she had gone home and thought over the whole thing. In the meantime she was a changed woman, had gained nearly forty pounds, had changed entirely mentally, and since the Monday has never had a spasmodic twitching of any kind. She said that for three days the left side, especially the arm, had been bathed in profuse perspiration, and that the whole side had felt as though the blood were flowing through it. It is now nearly a year since the event. The numbness, pain and spasm have entirely disappeared, and in many ways mentally she is a different woman. I later went over the same test words that had shown a delayed reaction with religious answers, and they are most of them normal in time and reply. She still suffers from the periodic attacks of headache and as soon as possible will return to eliminate them.

I have no doubt that complete mental catharsis took place during these three days, and that she will remain cured so far as the spasm is concerned. Dr. J. N. Hall and Dr. A. J. Markley saw this patient both before and after the treatment, and a number of my colleagues in the Metropolitan Building will be able to substantiate the cure that was brought about in this woman. No matter what critics may say of Freud or his methods, such cases stand as monuments to his genius.

436 Metropolitan Building.

DISCUSSION ON THE PAPERS OF DRS. ROGERS AND LAZELL.

George E. Neuhaus, Denver: My conception of the subconscious corresponds very much to that outlined by Dr. Rogers, namely, that it relates to the processes which have in the course of life become submerged and are more or less forgotten. They are processes which are active, and, as Dr. Rogers said, they determine the attitude we take toward other events in life. They determine our attitude towards other persons, and in that way become the most active and influential factors in molding our entire mental life. These subconscious processes have a great importance in the study of the neuroses, and credit is due to Janet, who first began the study of subconscious phenomena in the production of neuroses, which study was taken up later by Freud and developed in certain directions.

The case that was reported by Dr. Lazell shows very prettily how repressed sexuality will lead to the production of neurotic symptoms. It is Freud's teaching that the primitive forces of life—sexuality, hatred, hunger—are active, although they may be modified and covered with a thin veneer by civilization. Civilization teaches us that certain things are wrong; that sexual thoughts or passions, sexual desires, are reprehensible, and therefore the individual tries to repress these impulses and succeeds in doing so to a greater or less degree. However, these impulses are present, and through this constant conflict between the teaching of ethics and the ever-present primitive impulses of life, in neurotic subjects symptoms may be produced. For instance, in the patient of Dr. Lazell the repression of sexual desire brought on the condition of spasm described by the doctor.

One incident Dr. Lazell referred to and wanted me to mention is this: In making the association test one reaction of the patient was explained by saying, "but as the man was lowered on the table to be healed, so she went up to Christ." Evidently this is an instance of what Freud calls the transference of the affect from the patient to the physician. The patient ought to get into certain rapport with the physician, and the patient should attach his or her affect or emotion to the physician. Undoubtedly Dr. Lazell saw this as clearly as I did. Naturally his ethical impulse, his modesty, repressed the knowledge of it, so that it required my mention of the fact for him to become aware of it, which in itself is a good demonstration of the principle of Freud's teaching as regards repression. The association test is the simplest and most effective means by which we can gain access to the repressed complexes in our patient's mind. We have a series of test words that are called out to the patient. The patient is requested to answer by the first word that comes to his mind. He must not seek for the proper word, but give the first word that occurs to him. If the test word we give him touches on some repressed complex, which in some way stands in relation to his sexuality, then there takes place in the patient a momentary repression. Subconsciously the patient tries to keep away from the answer which occurs to him, because he feels he might give himself away by giving that answer, and this momentary attempt to guard himself or to protect himself will lengthen the reaction time.

In carrying on association experiments we give a patient a series of words; with watch in hand we note the reaction time, and normally in my experience the reaction time is about four-fifths to one second. When a patient is asked a question and hesitates in answering, or does not produce a reaction, that is, if he tells you nothing at all, or when there is an absolute blank in his mind, then this phenomenon is a certain indication that our test word has touched a complex which is of great importance in relation to the patient's symptoms.

Freud has been criticized very much for putting sexuality in the foreground in building up his theory of the neuroses. In the first place, Freud has been misinterpreted with regard to the term sexuality. The word sexuality does not refer to gross sexuality, but he means by sexuality anything that relates to the other sex. For instance, if you are asked whether you would care to go to the dance and dance only with the men present, you would probably say there would be no pleasure in that; you would want to dance with the ladies. That is from Freud's standpoint an evidence of sexuality. It undoubtedly is, and only in this particular sense does Freud refer to sexuality.

I believe that Freud goes too far in his interpretation of symbols when he says every pointed object, every long object, which a patient might mention as having dreamed of or as taking a prominent part in this patient's history, refers to the penis. I think that is very often straining a point very much. I think Freud goes too far in that, and he has done that only in his later work. In his earlier work he did not go so far as that.

Another criticism I have to make of Freud's work is, he now traces all neurotic symptoms to the experiences of infantile sexuality, which is evidently going to extremes. However, one thing is true, namely, that sexuality plays a great rôle, perhaps a greater rôle than any of the other primitive instincts in human life, and also, therefore, in the production of symptoms in the neuroses. It is not in the gross mind that the conflicts of sexuality produce neurotic symptoms, but especially in the sensitive person, in the type of mind that is over scrupulous, that is overconscientious, because it is just that type of mind that is most conscious of a conflict existing between the innermost feelings and the teaching that religion and ethics have given.

Professor Cole, University of Colorado, Boulder: I want to say this about the methods of mental healing, that the difficulty I find with books on psychotherapy is that no final results are given. In connection with Freud's methods, it is essential to keep track of the patients and find out what becomes of them. We do not know. That is the great difficulty in reading books on psychotherapeutics.

Dr. Cabot of Boston recited in a lecture there the sanest thing I have heard about suggestion. A woman presented herself at a clinic, saying that she was tortured by having a lizard in her stomach. Since she was a "clinic-trotter," no very careful examination was made. One young man said, "That is all imagination; I will fix it. Send her to me." They sent her to him. After making some inquiries about the woman's case, he said, "If this drug acts as I suppose it will you will be cured. If, after you begin taking these powders your urine is colored blue you will be cured." He gave her large doses of methylene blue and she thought she was cured.

The case was dismissed and they thought they had a case cured by psychotherapeutics. In three months she came back. A careful examination was made. Her feces were analyzed, and it was found she had hyperacidity of the stomach. She was treated for that condition and a cure was brought about.

The very fact that the physician does not neglect a single objective test or symptom is the thing that gives confidence to the patient.

George A. Boyd, Colorado Springs: I fully agree with the opinion of Mark Twain with reference to the humbug (Christian Science) which in recent years has been perpetrated upon an unsuspecting public, and wish to say that it is neither Christian nor scientific; and yet I believe there is a modicum of truth contained in some of their teachings, inasmuch as they accomplish in a haphazard way just what the psychotherapist does in a scientific way.

There are two great dangers (there may be others) confronting the medical profession. One is that we become so engrossed in the findings of the postmortem table that we lose sight of our reason for existence and do not use our knowledge in many instances to prevent others from coming to the postmortem room. Another is that any new idea or method which may be advanced is classed as rubbish, just simply because it does not confirm our preconceived ideas, and I think that has been the attitude of the medical profession for a time with regard to psychotherapy. I thoroughly believe that if these papers succeed in making us think and recognize the fact that there is a great deal that can be accomplished by this method, the authors of the papers will have accomplished a great task.

Dr. Edward Delehanty, Denver: I do not intend to discuss this subject except to call attention to the fact that too many practitioners hastily go into the subject of psychoanalysis. It certainly requires a great deal of patience on the part of physicians, and as has been said, what the results are we are still in doubt.

In a paper read before the American Medico-Psychological Association this year, Dr. Carlos MacDonald puts no confidence whatever in this theory. I do not feel that I ought to criticise any theory I have not tried out, but from what I have read, it seems to me foolish and really untenable.

Howell T. Pershing, Denver: I shall have to speak rapidly, with no time to argue or explain; and, if I should express my views somewhat dogmatically, I hope the society will forgive me.

I have been interested in psychotherapy since the time I graduated in medicine, coming under the influence of Weir Mitchell, and naturally following his psychic methods in the treatment of hysteria. Many years ago I argued before this State Society that psychology was a necessary part of the medical curriculum and that all which pertained to the mental causes of disease and mental factors in treatment had been neglected by the profession to an extent that would not be excusable in the future.

Dr. Rogers was kind enough to join in the discussion of that paper and to give it his approval. At that time he was known as a thoroughly trained physician and skillful surgeon, and I was somewhat surprised that he accepted my ideas on psychotherapy as he did. Since that time we have had many discussions together and have worked in harmony.

The causes of disease are almost infinitely various. The human machine has both mind and body. In some respects it is just as much a piece of mechanism as your automobile; it can be put out of order by mechanical influences, such as a foreign body, a fracture, or a dislocation, and the remedy naturally is of the same kind. From foreign bodies it is not very far to go to the parasites, such as tapeworms. They are foreign bodies, but they are alive. The proper treatment is to expel them. Infections are due to parasites, only they are microscopic, and the treatment of infection must essentially be the treatment for its cause. It must be the prevention of the entrance of these living organisms into the system or killing them after they get in, and keeping them out in the future. But we come to another class of diseases—hysteria, for instance—whose causation is pre-eminently mental, and whose treatment must accordingly be mental. So it is with neurasthenia, the essential cause of which is a succession of mental perturbations which in the end have a physical effect upon the system.

Can we divide sharply and say this class of disease is physical and must be dealt with exclusively by physical methods, and the other class is mental and must be treated exclusively by mental methods? No, because a person suffering from purely physical disease is conscious. He has mental experiences that are affected by the disease, and he may be very much affected mentally by the treatment of his physical disease. Therefore, while surgeons deal more particularly with the mechanical troubles of the body, the surgeon has also a mental influence on the patient, and it may be very important. On the other hand, the hysterical and neurasthenic patients have physical disorders which need to be treated. Their health must be built up, and in certain forms of insanity, while the symptoms are mental, the causation is predominantly physical; for instance, melancholia, delirium tremens, or paretic dementia. We must not only recognize two classes of cases and two lines of treatment, but we must recognize their due proportions. It will not suffice to say this is one factor, and we will give our attention to it. We must, as far as possible, recognize all factors in disease and include all corresponding factors in treatment. We must try to see all things in true proportion. This means that the doctor must be trained on both sides. In general the physical causes of disease are far more numerous than the mental ones, and a knowledge of them must come first. When in addition we consider the mental side of a given case, we find that the confidence the patient has in his physician or surgeon is paramount. This must not rest upon the direct suggestion that everything is all right. but on the conviction that the doctor knows all there is to know about this particular trouble, and that he is not overlooking a little thing like an abscess of the liver or an ulcer of the stomach or an infection from the ear, in giving his suggestions. I may say, if I may make this matter personal, that Dr. Rogers is a psycho-therapist in whom patients have confidence, largely because they know that he was a man of thorough training and experience both as a physician and as a surgeon before he took up suggestive therapeutics. A recent graduate specializing in psychotherapy would be a dangerous person.

We may admit that even in the infections, mental influences count for a good deal. A man of courage, like Livingston, suffering from tropical malaria can probably get through better than if he were a coward, but his mental state affects the ultimate result but little, compared with the physical conditions. Instead of giving such a patient directions to be brave and to show fortitude, you give him mosquito netting and quinine, and if that does not do, you get him out of the malarial climate, and only incidentally do you bolster him up mentally. Conversely, in hysteria your main effort is to improve the mental condition, and then incidentally you build up the patient.

As to the subconscious, the unconscious and consciousness, I do not believe Bergson has any right to identify consciousness with life; he might just as well make both life and consciousness coextensive with matter. To speak of the unconscious mind is a contradiction in terms. In my opinion it is utter nonsense. There are different degrees of consciousness, however, and one might argue for a subconscious mind. I am only vaguely conscious of the outer parts of my visual field; I am conscious of them, but not vividly conscious. So in the mind as a whole there is a focus of vivid consciousness and a surrounding zone much less vivid that may be called subconscious.

What is partly conscious, however, is still mental; what is unconscious is only physical.

The Freudian theories assume that practically all functional nervous disorders are caused by some perversion of the sexual impulse. The patient is not aware of his desires because they are repressed into the subconscious, where they create a disturbance, but they can appear in consciousness only by passing the "censor" in a symbolic disguise. Their true nature can be revealed by putting a special interpretation on what the patient discloses of his conscious mind and especially by the interpretation of his dreams. Every dream is, in a Freudian sense, the fulfilment of a wish, and this wish is sexual. It makes no difference that the patient thinks his dream is about something entirely different. The actual images of the dream must be taken only as symbols, and sexual symbolism will explain their true meaning. For example: A patient dreams of a hill with a small white building on it, and back of the building are some forest trees. Innocent enough for the patient, but for the interpreter the hill is the mons veneris, the forest is the pubic hair and the building is the vulva. This and other revelations of what is going on in the subconscious result in the disturbing ideas and desires being brought into the full light of consciousness and the patient is thereby cured.

Take another example: A young man dreams that he is in a dark, wet confined place, like a cave. At first he cannot get out, but after much distress and struggling he finds himself on the outside. His father is standing beside him, and, without knowing why, he feels angry toward his father. He says, "You did not help me to get out." Here is the interpretation: The dark, wet cavern is a symbol of his mother's uterus. The struggle is his birth. The anger toward his father shows that in infancy the patient was sexually in love with his mother and jealously hated his father, wishing to displace him. This attitude toward the parents is the "Oedipus complex," which is very frequently revealed in the analytic study of patients. When this is explained the patient gets well.

The great majority of neurologists the world over are unable to accept such interpretations, and the conclusions and methods based upon them. To them it seems exceedingly improbable that the hill in a dream landscape is the mons veneris or that a patient really dreams of his intra-uterine life. They think that when one becomes a truly faithful Freudian he is like a convert to a new religion. He must give up scientific, materialistic doubt, with its demand for proofs and controls. He must leave considerations of mere probability and common sense far behind him in order to see all things revealed and all neuroses cured in the new world of sexual symbolism.

Dr. Lazell (closing the discussion on his part): Münsterberg has spent a good portion of his life trying to find out whether the subconscious mind really has any consciousness or is a matter of words. I am not interested in that. It is a matter of words. What I am interested in is in getting patients well, and here is a case that stands as a proof. You can theorize as to whether Freud has gone too far or not far enough, but the proof exists.

Dr. Pershing shows us that Freud has gone too far and that many of his theories lack scientific proof. But don't you suppose that a hundred years ago the first one who said that rubbing mercury on the outside of the body would remove a tumor of the brain may have been laughed to scorn; that the profession may have said: "The idea of mercury, rubbed on the outside of the body, removing a tumor of the brain is absurd!"

I challenge anyone to bring forward a case where psychotherapeutics has done harm, unless it be some person where other treatment, such as an operation for appendicitis was not permitted, because she was being treated by mental means. This is not likely to happen when members of the medical profession have charge of the case. So long as any method serves me so well as to cure a woman who has been nine years an invalid and confined to her house, I will not condemn it. Dr. Pershing stands for the position that because complete scientific approval has not been put on the Freud method, therefore we should not accept it in toto.

Nevertheless, let those of us who are trying to do something for patients that neither the surgeon nor any other practitioner of medicine reaches, treat these cases, and do not force them into the hands of unscientific practitioners, of Christian Scientists and the like, for mental treatment.

Dr. Rogers (closing the discussion): I quite agree with Dr. Pershing that the human body is a machine. The question which vitally concerns us here is: Is there an energy apart from the machine which impels the activity of this machine? That, of course, is a question in philosophy, a question for thinkers, which has been debated since the world began. My point of view is that there is such an impelling energy apart from the machine, and that the machine is not self-impelling. And here lies the great difference between my point of view and that of Dr. Pershing. He looks upon the mind as the result of the cell activities of the organism, while I look upon the mind as the cause of the cell activities of the organism.

As to the question of infection which Dr. Pershing discusses, and of the use of remedies when it occurs, I fully agree with him. I said distinctly that we must use all these agencies. The only difference between us lies in the emphasis we put on the agency producing the results. I believe that the action of drugs is secondary to the action of the mind; that drugs act in assisting and stimulating this energy; that the recuperative power in the body lies in this something we define as mind; that the "vis medicatrix naturae" of our old classics is this mental energy which constructs, maintains and repairs the body, and that our remedies simply supplement and stimulate this energy. Surgical operations are, in many instances, of great mechanical assistance to the repair, but very often they, too, chiefly benefit by stimulating this same mental energy.

Dr. Cole said he would like to see the end results in psychotherapy. Why does he lay greater emphasis on the end results in psychotherapy than in physio-chemical treatment and in surgery? A surgical operation does not cure our patient in the majority of cases, though it often greatly helps him. There is seldom an end result from the administration of medicine. Indeed, I believe that until we can arouse this inherent energy in the body, we do not get results in the treatment of disease.

The question to be answered is: Does consciousness affect neural activity? Do conditions of the mind affect the action of the glands and tissue activities of the entire body? Can we by volitional activity in the mind produce definite physical results? I believe we can, and that under favorable conditions this is constantly being plainly demonstrated. We are still in the experimental stage of psychotherapeutics, but our knowledge is rapidly growing. Things are constantly occurring in our daily work which compel those who have their eyes open to this question to think and investigate.

I agree with Dr. Pershing that Freud seems to have gone too far. I can not fully agree with him, however, that Freudism is not doing some good. It has, as have such cults as Christian Science, done much to awaken our attention to facts we did not notice before, and to enable us to realize that the practice of medicine is something more than the mechanical administration of remedies.

Dr. Delehanty uses the term psycho-analysis in connection with Freudism. By psycho-analysis we try to find out the nature of the repressed complexes which underlie and impel the symptoms active in our patient. In my own work I often obtain the benefits of psycho-analysis without resorting to test words or other elaborate indirect methods. I find that, when by explanation, encouragement, questioning and interest, I get my patient to talk, he will soon tell his full story and revive and connect the incidents of the long-forgotten past. In this way I often get to the bottom of the trouble, how it originated, how it grew and how it came to produce a definite pathological condition.

THE PREVENTION OF FALSE KELOIDS IN SCARS BY THE UNDERLINING OF INCISIONS WITH STRIPS OF FASCIA LATA.*†

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The free transplantation of fascia lata has been employed recently for a variety of purposes—in operations for hernia; to close defects in the abdominal wall, the pleura, the dura, the bladder, the intestinal tract, the trachea and the larynx; in nephro- and gastropexy; for elevation of the corner of the mouth in facial paralysis and of the eyelid in ptosis; for the reinforcement of suture-lines in operations upon the intestines; for closure of the pylorus in gastro-enterostomy; for the repair of tendons and the formation of new ones; in the mobilization of anchylosed joints, etc., etc.

It is well adapted for all these purposes because of its strength and non-elasticity; its remarkable tendency to heal in, even, at times, in the presence of infection; and because it does not undergo absorption, but remains unchanged within the tissues. The material is abundant and easily obtained. It may be removed from the thigh in narrow strips or in large areas, with or without closure of the resulting gap in the fascia, there being little danger of subsequent injury to the functions of the extremity.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

†This method was described in a discussion before the International Surgical Society, New York, April 14th, 1914.

To the uses already reported I desire to add a new one which is perhaps of some importance:

One of the disagreeable things which may follow a surgical operation and detract much from an otherwise satisfactory result is hypertrophy of the cicatrix—a so-called "false keloid." The scar becomes thick, elevated and red, and if in an exposed position it is a source of mortification to both surgeon and patient.

No reliable method has been devised for the removal of these keloids. When excised they almost invariably return, owing to the continuation of the causes which produced them, and the injection of thiosinamin and other substances is equally unsatisfactory.

The hypertrophy often seems mainly due to tension upon the scar, and hence it is seen in connection with longitudinal rather than with cross incisions. Wounds about the neck, the abdomen or the joints which run at right angles to the line of normal tension are seldom if ever followed by much hypertrophy, while those parallel to the line of tension are frequently affected, as may be observed in the axilla after operations for cancer of the breast and about the neck following various surgical procedures. Hypertrophy is particularly apt to occur in tuberculous patients, owing, perhaps, to substances circulating in the blood, or present in the skin, which predispose to the excessive formation of fibrous tissue. Hence conspicuous and deforming scars often follow operations for tuberculous glands of the neck.

Some months ago a young and handsome woman consulted me regarding the removal of a disfiguring scar resulting from an operation for tuberculous lymph-nodes of the left side of the neck. It extended from the mastoid to the center of the clavicle and was as wide and as thick as one's thumb. It was fiery red and formed a conspicuous and mortifying deformity, as it stretched across the neck like a great "flying buttress."

Knowing that excision of the cicatrix would be followed inevitably by a prompt recurrence, as had been my experience on previous occasions, it occurred to me that if tension upon the new scar could be eliminated, it would be placed under the same conditions as a cross-incision, and reappearance of the hypertrophy might be prevented.

Hence, with this idea in view, a strip of fascia lata was procured from the thigh, long enough to reach from the mastoid almost to the clavicle with the head in the median position, and about as broad as one's finger. After thoroughly extirpating the scar and undermining the edges of the wound, the strip was spread lengthwise beneath the incision. It was then fastened to the under surface of the skin and fascia on one side, and to the deeper tissues on the other side, with a few sutures of fine catgut, thus permitting the union above it of the integument and cervical fascia without danger of displacement. Primary union was obtained.

Posterior to the longer scar described above was a much shorter one, which was also hypertrophied and red. This was likewise excised, but for various reasons was not underlined with fascia lata, although the deep fascia was carefully sutured. Hence this second scar became a sort of "control experiment."

At the end of nearly fourteen months the results of the procedure are as follows: when an attempt is made to incline the head to the opposite side, the movement is checked by the strip of fascia lata, which stands out plainly beneath the skin. This does not inconvenience the patient, because the same check was produced to an even greater extent by the false keloid. There is absolutely no pull upon the new scar, which is quite soft and freely movable upon the surface of the underlying graft. There is some tendency to hypertrophy and redness, especially near the clavicle, to which the fascial strip did not quite extend, but the new scar is inconspicuous and relatively "normal," much to the satisfaction of the patient.

It is interesting to note, however, that the smaller, posterior scar, the "control experiment," which was not underlined, has become markedly red and elevated, in spite of its being relieved from a certain amount of strain by the anterior fascial graft, and the cicatrix upon the thigh is hard and red and almost as large as one's little finger.

It must not be lost sight of, however, that a part of the satisfactory outcome may be due to the mere underlining of the incision with a layer of tissue corresponding to a smooth, firm, intact deep fascia, and not altogether to the relief from longitudinal strain; but however this may be, the value of the method remains the same.

A second case upon which I operated in a similar manner was that of a young woman from whose neck a mass of tuberculous glands had been excised, leaving a long, red, hypertrophied scar extending from the mastoid downwards and inwards almost to the larynx. The disfigurement was not so great as in the preceding case, but it was sufficient to justify an energetic attempt at its removal. The result at the end of four months is eminently satisfactory, the scar being small, soft, not red, and freely movable over the fascial graft.

There is theoretical ground, at least, for assuming that the horrible deformities due to the hypertrophy and contraction of burns, especially about the neck, may, in appropriate cases, be relieved by the intelligent use of fascial grafts.

424 Metropolitan Building.

DISCUSSION.

W. W. Grant, Denver: We always welcome any innovation of a promising character in the treatment of any surgical condition, particularly so in reference to keloids in which operative interference has been so unsatisfactory. The real origin of the keloid we seem not to understand Only yesterday I examined a young lady, eighteen years old, with keloids just below the sternal notch of several years' duration. In the past one surgeon removed one of these keloids which was as thick as the little finger and nearly an inch long. It promptly returned, and since then nothing has been done. The tendency of these growths from surgical interference is to a rapid degeneration into epithelioma or sarcoma, as suggested by the pathologist. I declined to operate in this case and referred the patient to a Roentgenologist, having found in some of these cases that the x-ray produced better results than surgical interference. In this case there were three or four keloids, and operation, unless some new procedure was adopted, would simply be likely to result in an aggravation of the present condition.

A. C. Stokes, Omaha, Nebr.: The operation described by Dr. Freeman of transplantation of flaps has been exceedingly interesting to me. Dr. Freeman's paper is along a line which I have never thought of before. We have cases in which we can resort to transplantation of flaps in various places, such as those suggested by Dr. Freeman. I do not know that I can be as thoroughly enthusiastic in regard to the transplantation of flaps as some have been. We tried it on a lot of dogs. In some cases there was sloughing. We kept the wound as aseptic as we could and put some fascia lata flaps in the wound. A certain number healed, while others did not. There was one thing we discovered which is absolutely necessary, as brought out first by Dr. Arthur T. Mann of Minneapolis, and that is this: In order to hold the flaps and get them to grow, they must be put in in such a way that they are on tension all the time. That is one of the chief principles of transplantation of fascia lata. It seems to me Dr. Freeman's theory of the use of them in false keloid is interesting, and considering what we think to be the cause of false keloid, it looks as though it ought to be a useful procedure. If these flaps are held in position they will heal more readily to the adjacent tissue, they become incorporated in tissue under tension better than in any other position. Therefore, in these cases we should be very careful in our transplantation of flaps to put them under tension.

I have had failures because I did not get the flaps so that the corners held. Care must be used to secure all the sutured points in good position.

Leonard Freeman (closing): Dr. Stokes has said something that is perfectly true, which is: that "this method looks theoretically as if it ought to do the work." That is in fact all I can possibly claim for it. The number of cases I have had is not sufficient to put it upon a very firm basis, but they are sufficient to be very suggestive and I hope will lead others to give the procedure a more extensive trial.

NASOPHARYNGEAL POLYPUS.*

ROBERT LEVY, M.D.,
DENVER.

The question of polypi in the nose and nasopharynx is of special interest for more reasons than one. According to Goodale and others, a polyp is an edematous hypertrophy of the mucous membrane in which as in the case of firm hypertrophy the process may be limited to the superficial layers or extend to the depths. Of interest is the study of nasal and particularly nasopharyngeal polypi as regards their development as well as their origin. The importance of determining their seat of attachment is self-evident.

Zuckerkandl (volume 2, page 81) speaks of a form of polyp the pedicle of which arises from an accessory sinus. Of interest also is the discussion of different varieties of these growths. There was a time when all polypi were considered under one class but through the works of such men as Woakes, Zuckerkandl, Gruenwald and others we learn that myxomatous growths in the nose and nasopharynx may be divided into numerous classes according to their histology.

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*Read at the Annual Meeting of the Western Section of the American Laryngological, Rhinological, and Otological Society. March 21, 1914

Regarding the etiology of these growths there has always been a vast difference of opinion. For instance Woakes believed that all nasal polypi were due to ethmoid necrosis while Zuckerkandl states that in no case is there necrosis except in the presence of tuberculosis or syphilis.

Zuckerkandl (volume 1, page 320, 1893) relates the case of an abnormally large accessory maxillary ostium through which one might readily understand how a growth could be pushed from the antrum into the nose. It is more reasonable according to him to believe that the growth beginning in the antrum as swollen mucous membrane was prolapsed into the nose and continued to grow until it developed into a nasal tumor. It is generally recognized at the present time that there is a close relation between diseases of the nose and those of the accessory sinuses, and even before Zuckerkandl our own Bosworth made the statement in 1891 that these growths developed from an accessory sinus membrane which became thick and soft and was forced into the nasal cavity. This is plainly shown by the illustrations in Zuckerkandl (volume 1, plate 21, figure 4, plate 32, figure 5). St. Clair Thomson in speaking of nasopharyngeal polypi says that they take their origin in one of the accessory sinuses and protrude through the ostium into the nose. This occurs most frequently in the maxillary sinus and then the polypus generally passes backwards to hang into the post-nasal space. Nasopharyngeal polypi are thus shown to differ from nasal polypi, being generally solitary and of enormous size and, having originated in the maxillary sinus as a single antral polypus, the growth passes through the ostium maxillare and descends backwards into the post-nasal space. A very important and interesting feature in regard to these nasopharyngeal polypi according to this author is that they do not recur. St. Clair Thomson modifies this statement however when he says the condition of the antrum should be investigated and it may be necessary to open it through the canine fossa, even though the sinus is quite clear on transillumination.

Hajek makes the same statement (Archiv für Laryngologie und Rhinologie, volume 14, page 498) when he says that polyps in the nose have their origin in the antrum of Highmore and, as a therapeutic deduction following such a diagnosis, the safest method of handling these cases is by an opening through the canine fossa.

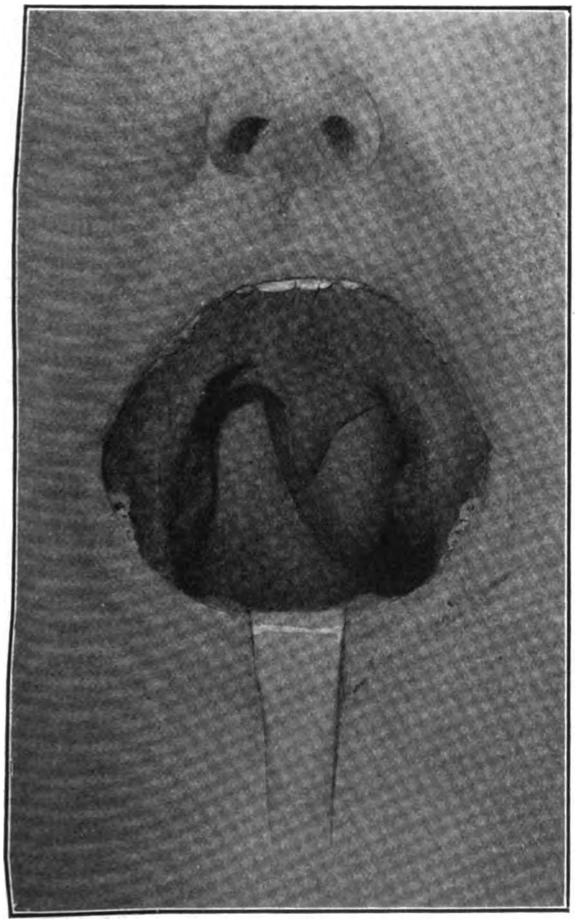
The article above all others which bears most upon the subject which I present to you is that by Killian entitled, "The Origin of Choanal Polypi," London Lancet, July 14, 1906. The author states that the treatment is very favorable, the majority of cases not recurring. The antrum shows slight chronic inflammation, with mucus but rarely with pus. He sought in vain for the origin of the polypus in a typical case, assisted by all the diagnostic aids recently placed at our disposal, and found no spot which could be regarded as the base of the polyp. Finally, however, he found a case in which the accessory opening of the maxillary antrum was unusually large, and came to the conclusion that the polyp might have had its root within the antral cavity. In further support of the maxillary origin he states that on one occasion he found the torn stalk project out of the accessory ostium. In another case the remains of the polypus stalk within the antrum could be seen by means of a small mirror introduced into the middle meatus.

Killian says that such cases would form suitable objects for investigation with the antrascope, and hopes that with this instrument still more definite conclusions upon the actual point of origin within the antrum may be obtained.

The fact that the usual nasal polypi are bathed in pus or mucopus, while the nasopharyngeal growths, especially when springing from an accessory cavity such as the antrum, are surrounded only by mucous secretion, offers another point of distinction between these two varieties.

After reading Killian's article I felt that an investigation of one or two of my cases might be of value, especially as they had been under my personal observation for a period of over ten years.

The first case was that of a young man aged sixteen years, who at the age of thirteen first noticed difficulty in breathing through one nostril. In 1905, two years before I saw him, a tumor had been removed with complete relief. In 1907 there was a return of all of the symptoms, and upon examination I found a large pedunculated growth in the nasopharynx. The growth was removed in the usual way by means of the cold wire snare. I did not expect a recurrence, but in this respect was disappointed. It recurred again in 1907, in 1911, and once more in 1912. Each time an apparently thorough operation was performed. All of the growths were cystic in character, evacuating a large quantity of serum at the time of operation. The pedicles of all of these growths were unusually long, corroborating the theory that the growth springs from the interior of an accessory cavity, becomes constricted at the ostium, and develops into a large dependent growth in the nasopharynx.



Nasopharyngeal Polypus. (First Case.)

Several other cases have occurred in my experience, but the most interesting one was that of a man whom I saw in 1904. He was thirty-four years of age, and presented symptoms similar to those of the case cited above. Upon examination a large tumor of the usual polypoid character was found in the nasopharynx. This was at once removed by the cold wire snare. There was no recurrence until eight years later, in 1912. It was again removed and found to be solitary as in the first instance. A third recurrence in 1914 was the occasion of more radical operation. Feeling that the origin of the polyp was in the antrum, I advised radical operation, and under ether opened the antrum through its anterior wall and thoroughly explored it by means of the Holmes nasopharyngoscope. This revealed to the satisfaction of myself and assistants a polypoid mass springing from the upper margin of the ostium maxillare. I attempted to make traction and thus show its extension into the nasal cavity. In this we failed, but by slipping a wire snare around the growth in the nose one could see the antral mass move with every attempt at traction. During this procedure the cystic portion of the growth burst and the remains were removed through the nose without the pedicle. Upon examining the antrum the mass was found in the same position as before, and it was readily grasped with a pair of forceps, the pedicle being thus removed through the antral opening. After checking the profuse hemorrhage, a small red tuft could be determined at the site from which this pedicle had been torn loose.

The skiagram of this case made by Dr. Childs was interesting in that the radiographer's report was to the effect that there was something in the antrum which was not of sufficient density to indicate pus, but which gave a perfectly typical shadow.

The histological examination of this growth, made by Dr. Hillkowitz, is also conclusive evidence that the antrum was the source of the growth. It was found that that portion removed from the antrum was covered with but one layer of ciliated epithelium and contained few glands and blood vessels, thus corroborating the well known fact that growths springing from the nose partake of the nature of the mucous membrane here and possess several layers of ciliated epithelium with numerous glands, while growths from the accessory cavities partake of the nature of the mucous membrane lining these cavities, which is covered with a single layer of ciliated epithelium, and contain few and poorly developed glands.

This case demonstrates conclusively the development of a nasopharyngeal cystic polyp having its origin in the maxillary antrum.

406 Metropolitan Bldg.

MODERN PSEUDO-MEDICAL CULTS.*

CUTHBERT POWELL, M.D., F.A.C.S.,
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1.—Osteopathy.

The science and art of healing the sick knows no "pathies," recognizes no sect. The scientific practitioner of medicine acknowledges no one-and-only method of treatment, but seeks continually for improvement in remedial agents, in methods and in technique. He is willing to use whatever agent or method is of proven benefit to mankind in the prevention and cure of disease. He is not bound to any one theory.

The ability to heal the sick, however, presupposes a certain amount of knowledge of the normal human economy, and certain definite, well-grounded ideas concerning the abnormal manifestations of diseased conditions.

It matters not what "pathy" or special cult one follows; it matters not whether the treatment advanced by the disciple of a particular sect consists of forced feeding or starvation, prescribing drugs or prescribing incantations, adjusting bones or rubbing muscles—in order to treat disease or heal the sick, one must demonstrate that such disease or illness exists. To treat disease without knowing its nature is an unscientific and dangerous procedure.

One must, therefore, irrespective of the methods of treatment employed, be able to diagnosticate between the normal and the abnormal, and differentiate the many and varied abnormal and diseased conditions to which the human flesh is heir.

"There should be one standard set for all practitioners of medicine, regardless of their methods of treatment; and this standard should be sufficiently high to guarantee that the practitioner is able to properly diagnose disease."[1]

In order to practice law one must fulfill certain requirements. He must show a sufficient knowledge of the law and its application before being admitted to practice his profession. No state has set different standards for different kinds of lawyers applying the law according to varied theories. All lawyers must attain a certain standard.

So also with other professions, a standard is set by law or otherwise and certain requirements are demanded before one is recognized as entitled to practice his profession.

This is not true, however, of the profession entrusted with the cure and prevention of disease, commonly called the medical profession. Here any one with an idea, be it founded on fact or fancy, may set himself or herself up as a "discoverer" of the only sure cure for disease and the only proper method of treating illness, and with glib tongue and far-fetched statements gather a coterie of followers suffering from real or imaginary troubles, who, finding temporary or imaginary relief, herald to the world that having tried all else, they have been rescued by the wonderful "discoverer" who has found a panacea for every ill. Schools are established, particular and peculiar systems of healing are taught to gullible "students" lacking for the most part in preliminary education; the only real requirement for admission to these "colleges" being the ability of the student to pay the matriculation, tuition and other fees. The graduates go out and prey upon the innocent and ignorant sufferer, frequently the victims of incurable diseases who are willing to grasp at any straw and pay for any promise of relief.

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*Read before the Medical Society of the City and County of Denver, March 2, 1915.

This is the first of a series of papers by Dr. Powell on modern pseudo-medical cults. The second paper will deal with "chiropractic."

Our legislatures protect these irregular and irrational practitioners, who subscribe to no standards, but who fleece their ignorant, unsuspecting victims, under the guise of practicing a certain "pathy"; and who object to conforming to medical practice acts, because, according to their claims, they do not practice "medicine."

The cult of mechano-therapy or of drugless healing which has attained the greatest present-day popularity was originated by Dr. A. T. Still, who, in 1874, "discovered" osteopathy.

Dr. Still was at this time engaged in practicing medicine at Kirksville, Missouri, where he was known among his neighbors as "Crazy Still."[2] Becoming dissatisfied with his lack of success as a practitioner of medicine, he decided to invent a system of his own, and he states in the preface to his book, "Osteopathy, Research and Practice," that "As an educated engineer of five years' schooling . . . I began to experiment with man's body as a master mechanic would when he had in his charge any machinery which needed to be kept perfectly adjusted and in line in order to get perfect work."

The osteopathic theory of disease may be briefly stated by quoting Dr. Still as follows: "Knowing that the death of any structure depended on the cessation of its blood-stream and that death could not occur without this, I reasoned that disease, which is really a functional death, must be due to a partial cessation of the blood flow from some mechanical obstruction to the artery or vein of the organ primarily affected."[3]

He "found mechanical causes for disordered functioning or poor work of the head, neck, thorax, abdomen, pelvis or extremities." By adjusting the bony framework he secured such good results that he was encouraged to continue his investigations until he was satisfied that "osteopathy is the natural way by which all the diseases to which the human family is heir can be relieved and a large majority of them cured."

The first School of Osteopathy was established by Dr. Still at Kirksville, Mo., in 1892.

No educational requirements were demanded for entrance upon the study of this new-found science, which consisted of a brief course in anatomy and "adjustmental treatment" and opened another avenue of easy approach by which incompetents might enter the medical profession, and an easy means of winning a living from gullible sufferers.

Osteopathy enjoys more or less present popularity. Many of its followers and teachers are honest, well-meaning men and women; are good citizens and stand well in their communities. They are unfortunate in having had little educational foundation upon which to build a knowledge of scientific theories and facts, and in having unscientific and false ideas instilled into their minds during a course of study purporting to fit them for the recognition and cure of disease.

Many of the followers of this cult are deserving of pity rather than of censure because of their ignorance and blind following of unscientific theories.

It is readily admitted that a certain per cent of recoveries from more or less serious conditions occur following osteopathic treatment. This fact, however, is not proof that the system of treatment is correct. For practically the same percentage of recoveries from more or less serious conditions occur with any system of treatment or with an entire absence of any form of treatment.

The American School of Osteopathy located at Kirksville, Mo., is the largest and most pretentious of the osteopathic schools. Its entrance requirements are in all probability a fair example of the education necessary to enter upon the study of this particular system devoted to the cure of human ills.

The following requirements are taken from its latest catalogue:[4]

"To be admitted to the freshman class he must exhibit to the Secretary or Dean by mail or otherwise evidence of education equivalent to graduation from an accredited high school."

But—"(A student may be admitted conditionally on one year's high school work, provided the condition is removed before entering upon the second year.)"

Or, "Lacking evidence of the above the student may be admitted on examination";

And, "Until further notice the trustees reserve the right to admit mature, well qualified students **though they are unable to furnish the exact requirements specified for entrance.**"

In other words there are absolutely no educational requirements. A student unable to furnish evidence of any high school work may be admitted on examination, the scope of which is not stated; but if the prospective student is unable or unwilling to take an "examination," he may be admitted anyway provided he is able to pay his tuition fee, which is not payable by the month or term but by the year in advance[5], and is stated to be $150. This is not the only fee required, however.

So much for entrance requirements or lack of requirements.

The course of study in this school is three years of nine months each with an optional fourth year.

According to the catalogue practically all subjects are taught here as in regular medical colleges with the exception of materia medica, pharmacology, therapeutics, and the practice of medicine. What facilities are offered for teaching all of the subjects, except those noted, covered by regular medical schools? This can best be answered by quoting Mr. Abraham Flexner, who made a thorough study of medical education in this country and abroad, and who personally visited and inspected all the medical schools in the United States and Canada as well as the osteopathic schools. Speaking of the Kirksville school (which according to the catalogue has between five and six hundred students) he says, "There I found one room which was used for short six week courses in bacteriology and physiology, in which thirty-two persons could be accommodated. There was one preparation room which was used for all laboratory subjects . . . In the school there were four lecture halls absolutely bare except for chairs; one small but fairly well equipped chemical laboratory; a simple dissecting room; a laboratory for histology and pathology, but no museum and no gross pathological material."[6] This was the condition of affairs five years ago in what was and is now probably the best osteopathic school in existence. According to the latest catalogue, there has been an evident enlargement of floor space at least since the above report was made.

Let us however, look into some of the theories propounded, and the methods of cure taught. G. W. Riley, Ph.B., D.O., in defining the exact meaning of osteopathic treatment says, "It consists solely of specific physical correction of structural maladjustments, or lesions. This is done by manual adjustment of the particular tissues involved and in no other."[7]

Osteopathy is "opposed to vaccination", "opposed to the use of drugs as remedial agents", "opposed to the use of serums in the treatment of disease".[8]

Opposed to vaccination, in spite of the fact that vaccination has robbed small pox of its horrors and rid the civilized world of the epidemics which left death or disfigurement in their path. The ingenious discoverer of osteopathy advocates "a law prohibiting the practice (of vaccination) and providing heavy penalties for violations".[9] And instead of a proven method of controlling the disease he states: "When they learn that a fly blister as large as a fifty-cent piece or dollar will keep off small pox in all cases, then there will be no fear or trouble about small pox or vaccination".[10] Here is one of the instances in which he slips off the plank in his platform which is "opposed to the use of drugs as remedial agents" for he not only advocates the use of cantharides as a blister for the prevention of small pox, but also believes that it "will be found just as protective against measles, diphtheria, scarlet fever, leprosy and syphilis and other infectious contagions as against small pox".[11] These beliefs have been inculcated into the minds of the 5,226 graduates of the Kirksville school as well as the graduates of other institutions in this country devoted to the teaching of this "science".

Osteopathy is opposed to the use of drugs as remedial agents, in spite of definite and incontrovertible proof of the practical eradication of hook worm with a drug, and of the drug conquerors of syphilis; opposed to the use of serums, antitoxins and vaccines, in spite of the fact that in diphtheria epidemics prior to 1892, approximately eighty babies and children died out of every hundred attacked, whereas with the use of antitoxin the mortality is approximately five per cent. Osteopaths are opposed to a method which will save the lives of seventy-five children out of a hundred affected by this disease and we allow them by law to carry their opposition into practice.

They are opposed to the use of typhoid vaccine, which has reduced typhoid in the U. S. army from 173 cases with 16 deaths in 1909, to 3 cases and no deaths in 1913.[12*]

In spite of the opposition to vaccination, a physician's report is one of the requirements for admission of nurses to the Training School of the Osteopathic Hospital affiliated with the Kirksville institution; and the question "Has she been vaccinated within the past seven years?" is to be answered by the physician making the report.[13] Is it possible that the opposition to vaccination is carried so far that a nurse will not be accepted who has been vaccinated? Indeed no, small pox in a hospital might start something that "physical correction of structural maladjustments" could not stop, and in spite of this "opposition" it would not be good business to have small pox break out in their hospital.

The osteopaths realize that many cases require surgical treatment, "and therefore advocate it as a last resort".[14] Thus while scientific workers and thinkers, without hope or desire for pecuniary gain, and others whose opinion is based on extensive observation and study have demonstrated that the only hope offered to victims of cancer is through early and complete surgical removal; we by law allow unscientific practitioners of a cult whose sole desire appears to be that of mercenary gain, to "treat" their deluded victims till all hope of cure is past and then as a "last resort" advocate surgical intervention.

What is true of cancer is true of all surgical diseases; that "last resort" surgery is as a rule impracticable and generally ineffective.

We need take up the therapeutic measures of the osteopath no further than to say that Dr. A. T. Still in his book treats by adjusting various bones of the body, among many other diseases the following: epilepsy, insanity and feeble mindedness, Hodgkin's disease, tuberculosis, small pox, erysipelas, measles, scarlet fever and typhoid.

Only recently in this state an osteopath has raised his voice in serious objection to certain contemplated care of our insane, expressing the belief that if these poor unfortunates were turned over to the care of him and his fellow-practitioners, their bones might be adjusted and they again be made responsible citizens of this commonwealth. In this connection it may not be inappropriate to quote briefly an item appearing in the Journal of the A. M. A., March 22, 1913, in the Northumberland County, Pa., Medical Society notes:

" Our community was shocked in the extreme when a young man of our town (Sunbury) shot the chief of police, who never regained consciousness and died about twelve hours afterward. A stray shot also injured the young man's father, but not seriously." This young man had been suffering from dementia praecox, had been under the care of local physicians, and also under treatment in a private sanitarium. Against the advice of his physicians, the father removed him to his home from the sanitarium and placed him under the care of an osteopath. "The father was assured that he could expect great improvement and was beguiled into believing that his son was decidedly better." Ten days before the homicide the boy refused to continue the treatments, and when the father and chief of police attempted to take him back to the sanitarium, the shooting occurred. The report of this case concludes with the question, "Is not this a strong plea that osteopaths should be trained in diagnosis and prognosis as well as the regulars."[15]

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*Two of these three cases in 1913 were in recruits admitted to hospital in their first six days of service, while in the third case only partial immunity through vaccination had been established. In other words, during the short space of five years, typhoid fever has been wiped out of the army by vaccination.

Belle Case Harrington, in an article entitled "What Is Osteopathy?"[16] says, "Osteopaths use no medicine except, perhaps, an occasional salve or lotion in skin troubles, or an antidote in case of poisoning". By what wonderful intuition is one "opposed to the use of drugs", and from whose studies of the healing art the subjects of materia medica, pharmacology and therapeutics are all omitted, enabled to select the proper salve or lotion for one of the hundreds of skin troubles; and how in the name of humanity can one without knowledge of drugs determine what or how much of an antidote to administer in case of poisoning. The same author rambles on to the effect that "childbirth, if two months' preliminary treatment can be given, is rendered safe and comparatively painless, lacerations and kindred evils being practically unknown under the osteopathic treatment". Here is a "twilight sleep" that is lying dormant for lack of a proper press agent.

The unthinking public legalizes the practice of this alleged science, and pays well for the treatments administered by its adherents. If the writer of "What Is Osteopathy?" had contented herself with giving vent to incongruous statements concerning the treatment of diseases alone, she might have made an impression upon a certain class of readers. "For he who humors the superstition and the stupidity of man always prospers",[17] and in nothing is man so superstitious and stupid as in matters concerning disease and its treatment; but this lady draws upon her imagination and makes statements having less foundation in fact than those of Dr. Still himself, who found that 95 per cent of lesions occur at the vertebral foramen, when she states that "Osteopaths are often called upon for expert testimony in court, and as examining physicians for insurance and railroad companies they are considered especially competent." Just who considers them especially competent in this connection is not stated. Perhaps they themselves will admit their competency in such cases; but surely the insurance and railroad companies do not.

The chief surgeons of two railroad companies have recently informed the writer that no osteopath has ever knowingly been employed by them in any medical or surgical capacity for their respective railroads, and that to the best of their knowledge no railroad employs osteopaths in its medical department.

Dr. Francis D. Merchant, Medical Director of the Mutual Life Insurance Company of New York, under date of February 2, 1915, writes, "As far as I know, none of the Life Insurance Companies appoint osteopaths as examiners. We do not feel that the education they receive is sufficient to enable them to make a physical examination or urinalysis. We may have among our eighteen thousand examiners some doctors who are practicing osteopathy, but they will have had the regular medical education."

Men may be superstitious and stupid concerning their bodily ills, but they are as a rule a little more careful of their money and its conservation. It is a question of money with insurance and railroad companies, and the examining physicians are selected for their ability to protect the companies from loss of money; hence they must be educated in recognized branches of medicine and trained to differentiate between the normal and abnormal, in order to keep the medical standards of the insurance and railroad companies at the level demanded by their financial interests.

What has this alleged science known as osteopathy accomplished for the good of humanity? Has it produced during its forty years of existence one man who has raised the standard of the healing art? Has it given birth to one practical idea for the prevention or cure of disease? No, but it is seeking to overthrow, by its teachings of a theory, conceived and nourished in ignorance, the achievements of generations of scientific workers and thinkers.

The vaunted "discovery" of an unsuccessful physician, poorly educated, and palpably unscientific, pretends to discredit the work of the master minds who have conquered small pox, diphtheria, yellow fever, typhoid fever and other preventable diseases.

Were osteopaths sent into the districts devastated by the Ohio floods to ward off pestilence and treat the sick and injured? Were osteopaths sent to rid the Canal Zone of plague and pestilence and thus make possible the accomplishment of the world's greatest sanitary feat? Are osteopaths working in the trenches among the soldiers of Europe's warring nations, curing the sick and aiding the injured? Are osteopaths as osteopaths doing anything except play upon the credulity of the human mind?

By their teachings they endeavor to overthrow the barriers erected against disease, and by their practice withhold the aid of surgery from their victims till as a "last resort."

Since earliest times medical cults and sects have arisen, flourished to a greater or less extent, and passed to oblivion; for "the art of healing is in universal request and the vulgar cannot distinguish the skilled from the ignorant".[18]

The rapid rise and as rapid fall of all systems of quackery and irregular schools of healing is aptly stated by the discoverer of osteopathy himself. In the first chapter of his book, speaking of the medical profession, he says "This incubator has had eggs put in it from all the hens that have laid nostrums and they have failed to hatch a single specific rooster for any disease. It is estimated that five hundred new eggs or nostrums are put under this hen or incubator every month, only to fail—they hatch, rot, burst and stink";[19] and with this statement he deposits the spermatozoa of ignorance and fertilizes the egg which, laid by the hen of stupidity, and put into the medical incubator, hatches out osteopathy.

But the hand of fate points already to the end of osteopathy as a separate cult. Notwithstanding its avowed opposition to recognized scientific methods of combating disease and its opposition to the use of drugs, vaccines and serums, the latest course of study advertised by the College of Osteopathic Physicians and Surgeons of Los Angeles, Cal., offers instruction in "Effects of Drugs—Physiological and Pathological"; "Hydrotherapy" and "Materia Medica."

It is now only a question of a few years, when the osteopaths, like the followers of Hahnemann, will have entered the ranks of those devoted to the cure of disease by any legitimate means; or when, like the followers of Isopathy, Cranioscopy, Broussaisism and others, they with their doctrines will have passed from the memory of man.

432 Metropolitan Building.

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THE DIAGNOSIS OF GONOCOCCAL AFFECTIONS BY THE COMPLEMENT-FIXATION TEST.[*]

WM. WHITRIDGE WILLIAMS, M.D.,
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There are numerous affections in which the gonococcus is suspected of being the causative agent, in which this can not be proved, owing either to a lack of history or to the absence of any discharge or, if there be discharge, to the impossibility of detecting the gonococcus in it even by the most painstaking bacteriologic methods. It is in these cases that the diagnosticians have looked for help.

In 1908, Irons of Chicago published the

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[*] Read before the Medical Society of the City and County of Denver, November 3, 1914.

results of using a suspension of gonococci which he injected subcutaneously as a diagnostic measure, similarly to tuberculin. Other investigators have taken up these allergic phenomena and now, besides the subcutaneous injection of suspensions of gonococci and their various split-products, there are the cutaneous (similar to v. Pirquet's tuberculin test) and the intracutaneous (similar to Noguchi's luetin test) methods of applying the test.

It appears that different persons vary considerably in their cutaneous hypersusceptibility to gonococcal reagents, no matter how introduced, and that the same individual will vary from time to time. Also, reagents prepared in different ways give varying reactions. It is for these reasons that the writer did not take up the tests referred to, but devoted himself to the method of complement-fixation as a means of diagnosis in obscure cases of gonococcal infection.

This method was first used by Mueller and Oppenheim in 1906 on a patient with gonorrheal arthritis. The method is based on the well-known Bordet-Gengou phenomenon which shows that when an antigen is mixed with its specific antibody in the presence of complement, a reaction occurs which fixes the complement and thus renders it unable to produce hemolysis upon the subsequent addition of sensitized erythrocytes. For instance, if the proper amount of a patient's serum be mixed with a mixture containing the correct quantities of antigen (gonococci) and complement (guinea-pigs' serum) and incubated for a given time, hemolysis will occur upon the addition of sensitized erythrocytes if the serum contain no gonococcal antibody. If, however, the serum contain the specific antibody, then the complement will become fixed to the gonococci during the period of incubation and upon the subsequent addition of sensitized erythrocytes no hemolysis will occur.

Other workers soon followed Mueller and Oppenheim, Meakins being the first in this country, but their results were more or less contradictory and unsatisfactory. These conflicting results were regarded by Teague and Torrey as probably due to the use of single strains of the gonococcus as antigens. They showed that the gonococci are in reality a heterogeneous family of organisms and state that "in attempting the diagnosis of gonorrheal affections by this method, extracts of several different strains should be employed."

The greatest credit belongs to Schwartz and McNeil of New York, whose splendid investigations are responsible for the present reliability and practical value of the method as shown by the results of over seven thousand tests made by different workers. In 1911 they reported the results of testing 324 human sera with an antigen prepared from twelve strains of the gonococcus and came to the conclusion that if only one strain were used a great many negative results would be obtained in positive cases. "An antigen prepared from many strains fixes complement whenever one of its component strains does so, and consequently the necessity of testing a serum against a number of antigens separately is avoided. It is not to be denied that there are probably other strains of gonococci differing widely from any present in the polyvalent antigen, so that at times a negative result will be obtained in a positive case. We consider, however, that working with an antigen composed of many strains, one will obtain a positive reaction in the great majority of cases of gonococcal infection, and the use of the polyvalent antigen simplifies the procedure so that it can be of practical value for diagnostic purposes."

Materials and Technique.

A. Patient's Serum.

The blood is obtained preferably from a vein at the bend of the elbow under aseptic precautions and at least 5 cc. are necessary for the test. After clotting the serum is removed, centrifugalized, if any cells appear to be in it, and inactivated by heating in a water bath at 55° C. for 30 minutes. The serum is then tested for the presence of natural antisheep amboceptor by using the test dose of serum with the test doses of complement and sheep cells, to be described later. If found to be present and causing more than a trace of hemolysis, it is removed by adding to the serum 60 per cent of the undiluted washed sheep corpuscles, placing in cracked ice for 30 minutes and then removing the cells by centrifugalization. It has been necessary to remove it in about two-thirds (55 of 84) of all the sera tested.

B. Antigen.

The preparation of the antigen is one of the most important steps in carrying out the test properly. Entering into the composition of the antigen used in the tests here reported were twenty-eight cultures obtained from various sources,* thus insuring a considerable degree of polyvalency. After growing the germs on appropriate media they were washed off, and it was endeavored to extract all the constituents of the gonococci—the endotoxins, as well as the bacterial proteins—by long-continued shaking with glass beads and then allowing them to autolyze. The mixture was passed through a coarse filter to remove the beads and was not sterilized by heating, but by the addition of a small amount of tricresol. By these measures it was hoped to obtain the optimum of antigenic properties. The amount to use in the tests was determined in the usual manner—one-third the anticomplementary dose being chosen. It has been repeatedly titrated during the past eleven months and its properties have remained remarkably constant.

C. Hemolytic System.

The antisheep hemolytic system is used. Fresh guinea-pig serum, diluted with nine parts of normal salt solution, serves as complement in 0.2 cc. amounts. The sheep cells are washed with three changes of salt solution, diluted with 19 parts of saline and used in 0.2 cc. amounts. The antisheep amboceptor is always titrated against 0.2 cc. of the serum to be tested and the above amounts of complement and cells. The hemolytic unit is thus determined and exactly 1 unit is used in the test. This titration is of great importance because the more accurately the hemolytic system is adjusted the more correct will be the result of a test. By testing 0.2 cc. of the patient's serum, which is proportionately five times the amount used in the Wassermann test, part of the difficulty experienced in detecting the usually small amount of antibodies present, due to the limited cellular involvement in a local gonococcal infection, is overcome and the use of exactly 1 unit of amboceptor, after the removal of any natural antisheep hemolysin in the tested serum, further permits the detection of a small degree of fixation of complement. With this combination the sensitiveness of the test is greatly increased, giving a larger percentage of positive results without endangering its specificity.

D. The Test.

A resumé of the preceding practical points, with exact directions for making a test, follow:

1. Prepare complement and dilute 1:10.
2. Prepare sheep cells and dilute 1:20.
3. Prepare patient's serum and inactivate at 55° C. for 30 minutes.
4. Determine if the serum contains natural antisheep hemolysin. Remove it when present.
5. Titrate the antisheep amboceptor, using patient's serum 0.2 cc., plus complement 0.2 cc., plus cells 0.2 cc., plus saline q. s. ad 2.0 cc. Incubate in the water-bath for 30 minutes. Dilute so that 0.3 cc. will contain exactly 1 unit.
6. Dilute the antigen 1:10.
7. Charge the tubes as follows:

(See table at top of next page.)

The serum - antigen - complement - saline mixtures and the controls are incubated in the water-bath at 38° C. for 30 minutes and then the amboceptor and cells are added. They remain in the water-bath until the serum and antigen controls (tubes 5, 6, 7, 8) are completely hemolyzed. They are then removed and the readings made.

An explanation of the above results is desirable. Tubes 1, 2, 3 and 4 will, or will not, be hemolyzed, depending on the absence or presence, in varying amounts, of gonococcal antibodies; in other words, whether the serum reacts negatively or positively. Tube 5, the serum control, shows that the serum alone or its antibody content does not inhibit hemolysis. Tubes 6, 7 and 8, the antigen controls, show that twice the amounts of antigen used in the test do not inhibit hemolysis. Tube 9, the hemolytic control.

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*The writer is indebted to the following for many of the cultures, and wishes here to express his thanks to them for their courtesy: The Cutter Laboratory, the H. K. Mulford Company and Messrs. Parke, Davis and Company.

	Serum	Antigen	Comp.	Saline		Ambocep.	Cells	Results
					I			
	0	1:10	1:10	0.85%	N	1 Unit	1:20	
					C			
Tube 1........	0.2	0.4	0.2	0.7	U	0.3	0.2	?
Tube 2........	0.2	0.3	0.2	0.8	B	0.3	0.2	?
Tube 3........	0.2	0.2	0.2	0.9	A	0.3	0.2	?
Tube 4........	0.2	0.1	0.2	1.0	T	0.3	0.2	?
Tube 5........	0.2	0	0.2	1.1	E	0.3	0.2	100 per cent hemolysis
Tube 6........	0	0.8	0.2	0.5		0.3	0.2	100 per cent hemolysis
Tube 7........	0	0.6	0.2	0.7	30	0.3	0.2	100 per cent hemolysis
Tube 8........	0	0.4	0.2	0.9		0.3	0.2	100 per cent hemolysis
Tube 9........	0	0	0.2	1.3	M	0.3	0.2	100 per cent hemolysis
Tube 10........	0	0	0.2	1.6	I	0	0.2	No hemolysis
Tube 11........	0	0	0	1.8	N	0	0.2	No hemolysis

shows that the hemolytic system is correct. Tube 10, the complement control, shows that the guinea-pig serum does not contain any natural antisheep amboceptor. Tube 11, the corpuscle control, shows that the sheep cells are not too fragile and that the salt solution is isotonic.

Results.

Eighty-four sera have been tested, and the following table presents their classification and the results obtained with the gonococcus complement-fixation test carried out as above explained:

Clinical Diagnosis.	Total	Positive	Negative
Arthritis	36	32 (89%)	4 (11%)
Controls	13	2 (15%)	11 (85%)
Chronic urethritis...	11	8 (73%)	3 (27%)
Cured g.-u. disease..	7	2 (29%)	5 (71%)
Acute urethritis	6	2 (33%)	4 (67%)
Salpingitis	5	3 (60%)	2 (40%)
Endometritis	3	1 (33%)	2 (67%)
Vaginitis	3	0	3
	84	50 (60%)	34 (40%)

General Considerations.

The writer will give a short history of the more interesting and instructive cases and point out where the serum test has been of value in helping to arrive at a correct diagnosis.

Among the arthritic cases was a patient who suffered with acute inflammation of a wrist together with an acute gonorrhea of three weeks' duration. The test was negative. It was thought that the negative reaction was due to the short duration of the urethral infection and that the arthritis was really gonorrheal in nature. Nevertheless, salicylates were given, with a prompt beneficial response. This outcome should serve as a warning to the clinician that a patient may have at least two different infections at the same time. Had this serum reacted positively, almost surely an incorrect conclusion would have been drawn and wrong treatment instituted. Just as with the Wassermann reaction, the result of a gonococcus complement-fixation test should be accepted as merely one symptom or sign, and it should always be borne in mind that gonorrhea is an extremely common disease in both men and women when interpreting the relationship between an arthritis or any other suspected gonorrheal affection and a positive test.

Another case presented a polyarthritis involving the fingers and toes, and reacted negatively. The patient gave a history of gonorrhea about ten years previously. The serum, however, gave a positive Wassermann and under appropriate treatment the patient improved.

A girl, aged 16, had a swollen knee and had run a temperature of about 100° F. for seven or eight weeks. A gonorrheal history was not obtainable and the possibility of a tuberculous process was thought of. Her serum reacted positively. Her physician reports that following the intradermal injection of a small amount of gonococcic vaccine, there was an intense local reaction and the fever subsided, and that she has since made good progress.

Among the control cases, five had positive Wassermann reactions and all gave negative gonococcus fixation. Four of the cases of chronic urethritis, giving positive gonococcus fixation tests, reacted positively with the Wassermann. Accordingly, it does not appear that the two reactions interfere with one another in any manner.

One of the cases among the controls which reacted positively, was a man who had gonorrhea fifteen years previously but who showed no evidence of it in his urine or elsewhere at the time of the test. It was an accidental finding and where the gonococcal focus, if any, was located was not ascertained.

The other positive control case was also discovered purely by chance. The patient had severe sciatica and her blood was sent in for a Wassermann test, which resulted negatively. As the writer was making a gonorrheal test that day, the serum was used to add to his series of controls. It reacted strongly positive. No gonorrheal history was obtainable, but with the use of gonococcic vaccine the patient made a complete recovery.

One of the cases reacting positively among the cured cases showed an enlarged prostate but no shreds, pus or gonococci in his urine. The value of the test in these so-called cured cases is marked, especially in those wishing to marry. Of course, the test may remain positive for quite a while, maybe up to two months or even longer after the infection is eradicated, due to the presence of immune-bodies which have not yet been eliminated. However, it will probably prove safe to consider a "cured" case giving a positive test as still capable of infecting others. A negative test, subsequent to a positive, under such circumstances is entitled to be considered absolute proof of the absence of a gonococcal focus.

The results in the gynecological cases, while the number of cases is very small, agree with those of other observers and seem to show that the pelvic infection must ascend to or above the cervix before a positive response is obtainable by the fixation test. Thus, one-half of the cases of salpingitis and endometritis reacted positively, while both of the vaginitis cases, each showing gonococci in smears, as well as the one case of acute urethritis in a woman, reacted negatively.

Conclusions.

Based mostly on the results of others, but bearing in mind the few observations described in this paper, the following conclusions are apparently justified:

1. To be of much practical value, the gonococcus complement-fixation test must be conducted with a polyvalent antigen and the hemolytic indicators must be carefully adjusted and repeatedly titrated.

2. The test is absolutely specific for the gonococcus. In no infection, other than gonococcal, has a positive reaction been obtained. Thus, it is more specific than the Wassermann test is for syphilis.

3. A positive reaction is always reliable and an indication of a gonococcal infection somewhere in the body. The only exceptions are when the serum is obtained from an individual who has recently received gonococcic vaccine or has just recovered from a gonorrheal infection and the immune-bodies have not yet been eliminated—a variable length of time but probably not exceeding two months.

4. The test is of particular value in suspected gonococcal infection in which the gonococcus can not be discovered bacteriologically. In doubtful cases, the only proof of a specific infection is the cultivation of the gonococcus. As a matter of technic, the acquiring of the gonococcus in culture, owing to its susceptibility to cooling, its association with other rapidly growing organisms, and the need of special media, is much more difficult than the fixation test. Except in acute cases, where the gonococci are abundant, the positive evidence produced by a Gram-stained smear should not be accepted as conclusive: among the sources of error may be mentioned the micrococcus catarrhalis, the diplococcus crassus, irregular types of Gram-negative cocci, and "most important of all are the so-called 'degeneration' forms of staphylococci. Indeed judging by the frequency with which they are found and the accuracy with which they may simulate the intra-cellular Gram-negative gonococcus, these staphylococci are re-

sponsible for most of the errors of smear diagnosis."—Keyes.

5. In interpreting a positive test, it should always be borne in mind that gonorrhea is a very widespread disease and that an individual may suffer from at least two different infections.

6. A positive reaction occurring in a patient supposedly cured of gonorrhea, indicates the presence of a gonococcal focus and the capability of infecting others. The importance of this in connection with marriage is great. A positive reaction occurs in about 20 per cent of those clinically cured.

7. In acute cases, in which the gonococci are usually easily demonstrated, the test is generally negative. Contrarily, in the chronic and ill-defined affections, where it is not usually feasible to obtain the organism, the test acquires its greatest sensitiveness.

8. A negative reaction does not exclude gonococcal infection, especially in the acute and subacute stages, without complications, when it is limited to the urethra or vagina.

9. Syphilis or a positive Wassermann reaction does not interfere with the test in any manner.

10. It is of particular value in the diagnosis of gonorrheal arthritis, giving about 100 per cent positive reactions.

11. Gonorrheal epididymitis, at least by the fifth week, also gives about 100 per cent positive reactions.

12. Chronic posterior urethritis, prostatitis, and seminal vesiculitis, with recurrent exacerbations, give about 75 per cent positive reactions.

13. Pyosalpingitis gives about 65 per cent positive reactions.

14. About 65 per cent of all stricture cases give positive reactions.

15. In gynecology, the test has proved its value in the differential diagnosis of pelvic inflammatory diseases from one another and from neoplasms. The test is usually negative in uncomplicated cases of urethritis, vulvo-vaginitis, and bartholinitis; it appears that the infection must reach at least to the level of the uterus before a positive reaction occurs.

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DISCUSSION.

Philip Hillkowitz: The society is under obligations to Dr. Williams for the presentation of his valuable scientific paper. Only those familiar with serologic work can appreciate the time, labor, patience and close application demanded in carrying out research of the character brought to us this evening by the essayist.

The complement fixation test for gonorrhea is a true antigen-antibody reaction, while the same technique as applied to the Wassermann rests on an entirely different basis. Strange as it may seem, the Bordet-Gengou reaction which was made popular through the Wassermann, and originally thought to be the explanation for the serologic test in lues, was later found not to apply in that particular case, as the antigen in syphilis may be an extract from normal organs. In other words the Wassermann is not a specific reaction. The complement fixation test for gonorrhea, however, is a strictly specific test.

In view of the minute amounts of antibody circulating in the blood of the gonococcic patient the test is necessarily very sensitive, and the comparatively coarse changes permissible with the reagents in the Wassermann will entirely vitiate the results in the gonorrheal test. All the reagents therefore must be accurately standardized from control cases. The reported failures are probably due to errors in technique. The antigen is likewise of importance, as emphasized by the essayist. Instead of one strain a polyvalent suspension is employed consisting of as many varieties of the Neisser diplococcus as possible.

A word as to the value of this reaction from a clinical viewpoint. What does the complement fixation test for gonorrhea tell us. Is it absolutely reliable? These are the questions usually asked of the laboratory diagnostician.

In their estimate of laboratory work physicians in general are divided into two categories. Either they place the laboratory worker on a pedestal of infallibility, or finding him once in the wrong they are apt to discount all laboratory research. The true attitude is the golden mean. As has been so often stated, the clinician and the laboratory diagnostician must work together and constantly check each other. Only in this way can the proper valuation be placed on a laboratory report. One must not expect perfection from a particular laboratory test any more than from the stethoscope. We do not discard the latter because it deceives us occasionally in diagnosing a cavity. Nor should we condemn a laboratory test because it does not hold good in 100 per cent.

The researches of Dr. Williams are a useful addition to the scientific work in this field.

Oliver Lyons: It is not my purpose to discuss the principles of the technique of this reaction. The secret of the whole situation is a satisfactory antigen. It has been found there are at least twelve separate strains, and it remains for future investigation to decide whether or not we have them all in captivity. An antigen made from the gonococci of one strain will react only to infections from this particular strain, so it is necessary to use a polyvalent antigen.

About three years ago I enlisted the services of Dr. Whitman and Dr. Walker, at the Medical College, and we made a clinical application of this test to 270 cases. For convenience they are classified as follows:

1st. Cases with a negative gonorrheal history: The blood of these cases was from infants with a supposedly negative gonorrheal history.

Twenty-five such cases gave a negative reaction, bearing out strongly the accuracy of the test.

2nd. Acute class of cases: That is, with their virgin attack of gonorrhoea, in which the gonococci were demonstrated bacteriologically. Some of these cases never gave a positive reaction, especially those that were controlled by repressive measures. However, most of the cases gave a positive reaction about the fourth week. Here, it seems, the test has its limitations.

3rd. These cases were the ones with acute manifestations in which there was a previous history of infection. Many of them gave a positive reaction when first seen, after the beginning of the acute attack, which would be from two or three days to ten days, showing that in all probability many of these cases had not recovered from their previous infection.

4th. Classes of chronic cases that had persisted over a long period of time, where the posterior adnexa were involved. In some of these cases the gonococci could no longer be demonstrated, and there was a clinical doubt as to the presence of the gonococci. The positive complement fixation test was pronounced.

5th. In this class of cases there was a chronic recurrent urethral discharge in which no gonococci could be demonstrated and no involvement of the posterior adnexa. The negative reactions in this class of cases ran rather high. This is in accordance with the modern view that the gonococci as a whole do not remain latent in a large number of cases, especially in the anterior urethra, as some are inclined to believe. However, one case of twenty years standing of stricture in the deep urethra gave us a positive reaction.

6th. This was the rheumatic class of cases. The application of the test was only made in cases with rheumatism, after a careful examination of the prostate and vesicles. The negative cases here were very pronounced. In many of the cases this was after a careful bacteriological and cultural examination had not justified us in making a diagnosis of gonorrheal rheumatism, although in many instances pus was found in the expressed juices of the prostate and vesicles.

7th. This class of cases was the clinically cured cases of gonorrhea. Some of these gave a persistent positive reaction for weeks and months. All finally become negative after the first year.

Physical examination combined with bacteriological and cultural evidence seems to warrant the assurance of a cure before the blood becomes negative. We have had a few instances in which a negative case became positive without any manifestations of the infection. We found the test accurate within its limitations. Remember that it records the reaction in the blood in the presence of an inflammation often localized and superficial, consequently we must not expect too much from it in the early or mild cases of gonococcal infection. On the other hand, if the blood reaction become marked and persistent it may continue positive for an indefinite time after the gonococci have disappeared. In contradistinction to the Wassermann reaction, which will become negative with mercurial treatment, there is no treatment that will render the complement-fixation test negative. We had two cases with a negative gonorrheal history that gave a negative reaction. They continued negative after the injections with a gonococcic vaccine. We also had one case with a previous history of gonococcal infection in which the blood was negative and which on giving injections of gonococcic vaccines promptly became positive with some other mild manifestations of infection but without any confessed or apparent reason.

It is a well known fact that the meningococcus and the gonococcus have a very close bacteriological and cultural relationship. They are morphologically similar, Gram negative and intracellular. A like relationship seems to exist as regards the complement-fixation test. However, this can hardly affect the clinical value of the test, owing to the rare conditions in which the two might co-exist.

The questions which remain to be solved are: (1) Does a positive reaction mean that there still exists a focus of living gonococci somewhere in the body; (2) If so, should such a patient be looked upon as capable of transmitting the disease; (3) How long will it take the antibodies to die out after the last living gonococci disappears.

Personally I look upon the test as one of great value; not only to the genito-urinary surgeon, but to the ophthalmologist in diagnosing obscure lesions of the iris, to the internist in his arthritic cases, and to the gynecologist in diagnosing the many different infections of the pelvis in women.

W. M. Spitzer: There is everything to be said in commendation of the paper read here tonight by Dr. Williams, and particularly is he to be thanked for the detail into which he has gone to explain to us this test. There is no doubt as to its specificity, it being absolutely as specific as the Widal reaction in typhoid fever. The complement-fixation test in gonorrhea is, as you have heard, so absolutely specific that unless many strains of the gonococcus are used one may find a negative where there is still a focus of gonorrhea present, because the serum of the patient will unite with the particular strain of organism only that the patient chances to harbor; and this despite the fact that the gonococcus may be said to be culturally and morphologically always the same despite its many strains.

We come now to the question of the usefulness of this test. While the Wassermann reaction to detect the presence of syphilis is not at all specific, and our complement-fixation test in gonorrhea is, as above mentioned, absolutely specific, the test for lues has a very wide range of usefulness which a test for gonorrhea will never find. It is admittedly better to find the specific microorganism of a disease than to have any laboratory test which involves the serum; and in acute gonorrhea, when the disease affects the urethra, this is always possible, whereas the fixation test is never present earlier than the fourth week; therefore in acute urethritis, this test is useless. In chronic urethritis of gonococcal origin either the gonococcus can be found or it cannot. In most cases, it cannot be found after eighteen months, except in cases of stricture, where I have known it to persist for years. Now, if it can be found the test is useless, whereas (because gonorrhea is not gonorrhea, by which I mean that the pathology of the original disease may go on and on, even though the gonococcus is no longer present, its place having been taken by other microorganisms which have crowded it out), if it cannot be found, this simply demonstrates that the gonococcus is no longer present, its place having been taken perhaps by some other organisms, but does not demonstrate the patient to have been cured, he perhaps being in much worse condition than when the gonococcus was present, and perhaps a more unfit candidate for matrimony than a man whose complement-fixation is positive. Thus, due perhaps to a stricture, he would be impotent to reproduce, or because of some disease of the prostate or the caput Gallinaginis, be impotent to cohabit sexually. For the same reasons the test is useless, or practically so, in prostatitis, vesiculitis, or any other post-gonorrheal condition of the genito-urinary tract.

It has a use where the systemic conditions due to gonorrhea, such as gonorrheal arthritis, iritis, endocarditis, etc., are to be suspected. But its use even under these circumstances is limited, as, in the event of one of these conditions occurring during an acute or chronic gonorrheal urethritis, the reaction might be positive, even though the condition of the joint or the eye were due to something else, whereas if there were no urethral discharge and the blood reacted positively, the positive reaction might be due to gonococci located in the prostate, vesicles, epididymis, or elsewhere in the genito-urinary tract, while the joint, eye, or other conditions might not be gonorrheal.

Therefore, while the test has a very limited use, that use is only for the man who does not at all depend upon laboratory findings, but by whom a laboratory finding may be taken into account, when he has thoroughly exhausted all clinical methods of making his diagnosis, and even then, with this particular test, the evidence of a positive reaction or a negative reaction should not be permitted to count for too much.

Lastly we have, as yet no proof that, despite the presence of a well walled-in focus of infection due to the gonococcus, which walled-in focus might not permit the antibodies to be formed in the blood, there might not be a negative reaction. Were this so, and did we permit the evidence of a negative reaction following a positive reaction to be accepted by the patient as an absolute proof of the absence of the gonoccocus, he might very easily infect innocent women when the sleeping focus awoke, and the crime would be ours.

When we decide to do away with the term "gonorrhea," which, properly translated, means "a flow of semen," and which as "chronic gonorrhea" has been used to denote the thousand and one diseases and combinations of diseases occuring in the genital tract, the urinary tract, and in both, in individuals who have previously had gonorrhea, we shall render the therapeutist a great service by preventing his thoughts from running in such a channel that he is, perforce, compelled to invent each week a new remedy which cures these thousand and one purely surgical diseases; further, we shall render the laboratory diagnostician an equal service by giving him a clearer understanding of the pathology of this vast field; in which event, he will, working under our direction, and with a lesser expenditure of energy, accomplish much more.

News Notes

After a brief period of uncertainty, it has been definitely announced that there will be no change in the place of meeting of the A. M. A. for 1915, but that the meeting will be held, as previously planned, in San Francisco. At least half a dozen more or less prominent newspapers of Colorado had prematurely announced that the association would come to Denver. However pleased the medical men and women of Denver and Colorado might have been to entertain the national gathering, it must be recognized that a change from San Francisco to Denver at so late a date would have been in some respects unfortunate. The physicians of the west coast city have already done a good deal of preparatory work, and they are to be congratulated upon having smoothed the way for what we hope will be one of the most successful meetings in the history of the A. M. A.

The Medical Society of the State of New York issues a very cordial invitation to all physicians, irrespective of their place of residence, to attend the hundred and ninth annual meeting of the Society, which will be held in Buffalo on the 27th, 28th and 29th of April.

The president of the Colorado State Medical Society has appointed as the committee on arrangements for the next meeting of the Society Drs. A. J. Markley, T. E. Carmody and W. A. Sedwick.

The daily newspapers have lost no time in telling us how, since the going into effect of the Harrison anti-narcotic law, thousands of drug fiends all over the country have been deprived of the only barrier between sanity and insanity. Undoubtedly a good many cases of a severe character will demand attention in public and private institutions. Presumably by this time every physician has paid his 34 cents to Uncle Sam.

Mayor Dr. J. M. Perkins of Denver has announced that his appetite for public life is satiated, and that he will not be a candidate for re-election to his present office of commissioner of social welfare.

Dr. J. H. McKay recently addressed the legislative committee of the Federation of Women's Clubs of Denver on the treatment of habitual drug users. He urged the provision of a sanitarium where these unfortunates might receive skilled treatment.

The Denver City Civil Service Commission has upheld the action of Commissioner Nisbet in dismissing Drs. Preston and McGillivray, surgeons of the police department, after abolition of the office by resolution of the city council.

At the meeting of the Otero County Medical Society at La Junta on February 16, Dr. B. B. Blotz of Rocky Ford read a paper entitled "Notes on Eastern Clinics."

Among the witnesses in the recent Noble trial in Denver were Dr. Charles Jaeger, Dr. T. M. Burns, Dr. Cuthbert Powell and Dr. Helen Craig.

Dr. L. Marshall Van Meter has been receiving congratulations on his marriage to Mrs. Frances D. Hill of Memphis, Tenn., which took place at Colorado Springs at the end of February.

Dr. S. F. Jones lately received from Dr. Charles Powers, now in Florida, a long letter from which it appeared that Dr. Powers is in the best of spirits and excellent health.

Dr. Mary Hawes states that she is feeling better than at any other time during the past two years.

On February 18 Dr. L. B. Lockard gave the Denver Medical Historical Club an after-dinner paper on "Pioneers of American Laryngology," illustrated by a large number of lantern slides.

Dr. M. E. V. Fraser was one of a party of ladies who took advantage of the snow which fell on the night of February 20-21 to make a snow-shoe trip in the vicinity of Palmer Lake.

Dr. W. B. Craig is now a grandpapa, and Dr. A. C. Craig the proud father of a vigorous boy baby.

On February 6 Dr. Farrand addressed the Colorado Scientific Society on "American Indians," and on April 3 Dr. J. W. Amesse will speak before the same society on "The Triumphs of Preventive Medicine."

Dr. Daniel G. Monaghan has opened offices at 564 Metropolitan Building.

Dr. C. B. Ingraham has removed to 668 Metropolitan Building.

Dr. H. B. Whitney will shortly remove to the Metropolitan Building.

Dr. Cyrus T. Pershing has opened offices at 216 Metropolitan Building.

The Rockefeller Foundation has arranged with the United States Public Health Service for the detachment of Dr. Victor G. Heiser, who for the past twelve years has been director of health for the Philippines, to take charge of the new work of hook-worm eradication in the valley of the Yellow River, China, now being organized by the International Health Commission, which in turn is one of the departments of the Rockefeller Foundation.

In the Journal of Nervous and Mental Diseases for February, Dr. H. T. Pershing reports a case of unilateral hypertrophy or trophedema of limbs.

Dr. G. H. Grimmell, who is 84 years old, was badly injured in an automobile accident on February 16.

Dr. A. I. Hayes of Victor sustained severe injuries when his automobile plunged over an embankment on March 3.

Dr. W. M. Woods, formerly of Trinidad, died in Denver on February 9.

Dr. G. W. Mathes, aged 82, retired, formerly of Texas, died in Denver on February 10, within twenty-four hours of the funeral of his wife.

Dr. Edgar Hadley of Telluride has been touring the eastern clinics.

Dr. J. C. Kennedy has removed from Yampa to Oak Creek.

Dr. E. E. Hobby expects shortly to leave Durango to take up the practice of medicine in Iowa City, his former home.

Dr. Lucy M. Wood, for twelve years at Boulder has left to be with her invalid mother at Logan, Iowa.

Dr. E. L. Morrill has opened offices in Fort Collins, where he will limit his practice to the eye, ear, nose and throat.

Dr. F. E. Wallace, representing Pueblo in the Legislature, introduced a bill providing for a disease prevention day in Colorado. The bill proposed to make it the duty of school teachers and officers to plan appropriate exercises for teaching the children, on May 31 of each year, disease prevention, personal hygiene and the like.

Colorado Springs Notes.

A new hospital costing $60,000 is to be added to the Modern Woodmen Sanatorium north of Colorado Springs.

The Colorado Springs Clinical Club held its regular meeting at the El Paso Club on the evening of February 24. There was a full attendance, and a very interesting meeting followed the 7 o'clock dinner, which is a regular feature of the club's meetings.

Dr. and Mrs. W. V. Mullin are rejoicing over the recent arrival of a large and promising daughter.

Dr. and Mrs. C. O. Giese were recent guests at Idaho Springs.

Dr. and Mrs. A. A. Blackman are on an extended trip to California.

Constituent Societies

DENVER COUNTY.

The regular meeting of the **Denver County Medical Society** was held on February 16, 1915, Dr. W. W. Grant presiding.

The question of a change of the place of meeting of the American Medical Association was discussed and a motion was made by Dr. McGraw that the Society extend to the Trustees of the Association an invitation to hold the 1915 meeting in Denver. The motion was carried.

Drs. Kate W. Buell; A. H. Faith, Parshall, Colo.; H. S. Finney, and Carl L. McLauchlin, were elected members of the Society.

A paper entitled, "Blood Serum Therapy of Diseases of the Skin, with Special Reference to Psoriasis," was read by Dr. A. J. Markley. The discussion was opened by Dr. Lingenfelter.

H. R. STILWILL, Secretary.

An enjoyable luncheon was had by 118 members of the **Denver County Medical Society,** at the Metropole Hotel, on February 18. The Harrison law, passed by Congress, regulating the sale and use of narcotic drugs, was explained and discussed by Mr. Mark A. Skinner of the United States Internal Revenue office, and by Mr. W. A. Hover, wholesale druggist.

H. R. STILWILL, Secretary.

EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held at the Antlers Hotel on January 13, 1915, with about thirty-five members present.

The report of the auditing committee was read and approved.

The following amendment to the by-laws was adopted: Chap. II, Sec. 1, was amended by inserting after the words "for one year" the following: "except the secretary, who shall hold office for three years."

After the short business meeting Dr. Horace G. Wetherill of Denver delivered his very interesting and entertaining lecture, illustrated by stereopticon views from pictures taken by himself, on "English Highways and Byways From a Motor Car." The lecture was well attended by members of the society, their wives and friends.

G. B. GILMORE, Secretary.

The regular monthly meeting of the **El Paso County Medical Society** was held at the Antlers Hotel on February 10, 1915, with the president, Dr. McConnell, in the chair, and thirty-seven members and three visitors present.

A special library committee reported that we now have in our library 1,574 books and 579 magazines. Last year we took nine magazines, and it was advised that this list be increased this year by the addition of five more. In addition to the ones subscribed for we are receiving nine gratis. A letter from Dr. W. A. Jayne of Denver was read, stating that the Denver Medical Library contained many duplications and that he thought it possible to secure some of them for our library. The report of the committee was accepted and placed on file, and the committee was continued and instructed to carry out its recommendations.

Applications from Dr. H. B. McCorkle and Dr. George L. Sharp for membership in the Society were read.

Dr. B. B. Grover read a paper on "Public

Health Then and Now." The discussion was opened by City Health Officer Dr. O. R. Gillett, and further discussed by Doctors Swan, Boyd, Rutledge, Webb, Giese, Bortree and Stewart.

Dr. J. J. Mahoney read a paper on "Uterine Hemorrhage"; discussed by Doctors Boyd, Swan and Schofield.

Dr. Daniels reported a case of and showed the post mortem specimen of complete absence of the ileum about six inches from the ileocecal valve, in a patient who died four days after birth.

The president announced the following committees for the year: Program and Scientific Work, Drs. McConnell, Loomis and Webb; Social Entertainment, Drs. Neeper, Friedmann and Mullin; Public Health and Legislation, Drs. Hanford, Gillett and Mahoney; Library, Drs. McConnell, Gilmore, Morrison and Boyd.

G. B. GILMORE, Secretary.

LAS ANIMAS COUNTY.

The regular monthly meeting of the **Las Animas County Medical Society** was held February 5, 1915, President A. Freudenthal in the chair. Other members present, Drs. Ogle, Lee, Jaffa, Thompson, Presnall.

An interesting paper was read by Dr. Ogle on "Maternal Impressions," and the discussion was general and interesting. While this question is not capable of definite proof on either side, it is of importance to the general practitioner, who is so often forced to give an opinion to pregnant women and anxious mothers.

Dr. Chisholm not being present, the Secretary read for him a paper on "Obstetrics," which was discussed by all present.

C. W. PRESNALL, Secretary.

PUEBLO COUNTY.

The **Pueblo County Medical Society** met in regular session February 3, 1915, President C. F. Taylor presiding.

The paper of the evening was read by Dr. J. L. Schwer, on "Blood Counts as an Aid to Diagnosis." It proved very instructive. The discussion was opened by Drs. Dunlop and Maynard.

Dr. Keeney recited a clinical case of hemorrhage in the newborn, relieved by a hypodermic injection of 10 c. c. of blood taken from the father.

The fee bill was laid over until the next meeting.

J. H. WOODBRIDGE, Secretary.

The **Pueblo County Medical Society** met in regular session February 16, 1915, President Taylor presiding.

Dr. Walter Bronson presented the paper of the evening, on "Disease Carriers." The discussion was opened by Drs. Maynard and Dunlop.

The Society as a committee of the whole then finished their work on the fee bill. The report of this committee was accepted.

Dr. W. T. H. Baker moved that the question of adopting this fee bill be deferred till some future meeting.

The motion was amended as follows: "That the question of adopting this fee bill be deferred till the next regular meeting and that the members be notified that it will come up for a vote." Motion as amended was carried.

A communication from Dr. Wolf of the City Health Department, relative to reporting contagious diseases was read and filed.

The medical bill then before the State Legislature was referred to the committee on legislation.

J. H. WOODBRIDGE, Secretary.

The **Pueblo County Medical Society** met in regular session March 2, 1915, President Taylor presiding.

Dr. W. F. Singer presented the paper of the evening, on "Treatment Before, During and After Laparotomies." The subject was entirely too broad, so only the more salient points were considered. The discussion, opened by Drs. H. A. Black and Lord, was very free.

The fee bill was laid over until members of the fee bill committee should be present.

The Society was informed that the library and library cases of Dr. W. L. Dorland, who was very ill and with no hope of recovery, would be presented to the Society. The secretary was instructed to communicate to Dr. Dorland's family that the Society would gladly accept the gift, and would place a plate on the cases to be a memorial to Dr. Dorland.

The new opium and coca law being under discussion, the following committee was appointed to confer with the druggists in regard to refilling prescriptions—Drs. Lord, Stoddard and Hoag.

J. H. WOODBRIDGE, Secretary.

SAN LUIS VALLEY.

The San Luis Valley Medical Society met at the residence of Dr. Trueblood in Monte Vista. January 27, 1915. The Society was entertained at dinner by Dr. and Mrs. Trueblood at 6:30 p. m., after which the annual business meeting of the Society was held, including the election of officers for the ensuing year. Dr. Shippey of Saguache was elected president; Dr. Moninger was re-elected vice president, and Dr. Herriman was re-elected secretary-treasurer.

The scientific part of the program consisted of a symposium on digestive disturbances. Dr. Miller's paper discussed the medical aspect, Dr. Davlin's the surgical and Dr. Shippey's the pediatrical. Dr. Miller gave as the most important causes of indigestion, pregnancy, tuberculosis, nephritis, restricted diet to point of starvation, gall stones and appendicitis. The relation of non-gastric to gastric causes is about 6 to 1. Cancer and ulcer are the only true organic causes. Dyspepsia is not a pathological entity, but a symptom complex, embracing many intricate causes. The value of pepsin and pancreatin preparations in treatment is overestimated. Dr. Davlin discussed the relation of cancer and ulcer to dyspepsia; also gall stones and appendicitis. Dr. Shippey gave the biological factor as of first importance in choosing a food for an infant, finding out what food or dilution the infant's cells would tolerate. He emphasized the importance of a careful regulation of the mother's diet, especially as regards fruits and vegetables during the first few months. All the papers were freely discussed by all present.

Dr. Shippey presented a case for diagnosis with severe headaches; blood pressure 180, with dimness of vision. Ophthalmoscope showed some neuro-retinitis and evidence of arterio-sclerosis, but no true choked disk. A tentative diagnosis of syphilis was made till Wassermann could be done.

Dr. McFadzean presented a specimen of a leg which had been amputated by Dr. Pollock for enormous sarcoma of knee, under spinal anesthesia with no pain. The patient was in a desperate condition before operation, with pulse 140. A paralytic condition of bowels and bladder developed after operation, from which patient never recovered. He died three weeks after operation.

Those present were: Drs. Trueblood, Pollock, Moninger, Crowley, Miller, McFadzean, McKibben, Shippey, Gotthelf, Shelton, Covelle, Davlin, Morse, Orr and Herriman.

The next meeting will be held in Alamosa in April. L. L. HERRIMAN, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

The regular meeting of the **Colorado Ophthalmological Society** was held February 20, 1915, Dr. Edward Jackson presiding.

Dr. E. T. Boyd presented a man, aged 34, injured December 10, 1914, by an explosion of rock from having picked into a missed hole. There were foreign bodies in both corneas, some of them having penetrated the cornea as well as the sclera. The left lens contained five small pieces of rock. Discussion by Drs. Libby, Patterson, Walker, Jackson and Matson. The general opinion seemed to be that eyes tolerated rock better than metallic substances, and that at present it would not be advisable to attempt to remove the rock in the lens or cornea.

Dr. Boyd also presented a case of complete atrophy of the optic nerve coincident with abscess of the lachrymal sac. Woman aged 35. History of three attacks of abscess of lachrymal sac of right eye. Last one occurred in August, 1914. The whole region in and about the eye was enormously swollen for about a week. The abscess then ruptured, swelling gradually subsided, and as soon as she was able to open the eye she discovered that she was unable to see with it. The ophthalmoscope showed complete atrophy of the right optic nerve. The pupil of her right eye reacted only in conjunction with that of the left eye. No individual reaction. Diagnosis: Optic atrophy resulting from orbital cellulitis incident to abscess of the lachrymal sac. Discussion by Drs. Crisp, W. C. Bane, Friedmann, Walker, Spencer, Neeper and Jackson. Dr. Magruder was the only one who had seen a similar case. Dr. Jackson had seen two cases of atrophy from orbital cellulitis.

Dr. H. R. Stilwill presented a woman, aged 30, with a corneal condition which he believed to be tuberculous. There was circumcorneal injection, photophobia, right pupil slightly dilated and irregular with a bank of whitish exudate and brownish pigment in the pupillary opening, and several small whitish spots in the corneal substance. Tension minus. Wassermann test negative. General tuberculin positive, with focal reaction in right eye. Physical examination showed evidence of pulmonary involvement. Under small doses of tuberculin there had been steady improvement in the ocular condition. Discussion by Drs. W. C. Bane, Sedwick and Spencer.

Dr. W. H. Crisp showed a man, aged 24, who three days before his first visit had been struck in the left eye by a staple which he was driving. There was a perforating wound at the sclerocorneal junction with prolapse of the iris, which was abscinded and atropin instilled. Discussion by Dr. Spencer, who congratulated Dr. Crisp on the good result obtained.

Dr. Edward Jackson presented a young man 21 years of age, who had had a convergence of 45 to 50 centrads of left eye. He performed a tenotomy of the left internus with tenotomy of the nasal two-thirds of the inferior and superior recti. Result very slight convergence. Discussion by Drs. Spencer, Patterson, Neeper and Bane.

Dr. Jackson also presented two cases of tuberculosis of the retinal vessels, full reports of which will be published later.

Dr. C. A. Ringle reported the case of a man who was struck in the eye by a blunt instrument of considerable size which caused a rupture of the globe, fracture of the lower rim of the orbit, prolapse of the iris and dislocation of the lens and detachment of the retina. The result was a shrunken irritable eye, which was finally enucleated, and the eye was presented for examination.

Dr. Magruder said that he had a child, aged 8 months, with marked convergent strabismus, with 3 D. hyperopia, and wanted to know if glasses should be put on. Dr. Jackson said "Yes," and that probably the child would soon get to the point where it would object to leaving them off.

E. T. BOYD, Secretary.

Book Reviews

A Laboratory Manual and Text-book of Embryology. By Charles W. Prentiss, A.M., Ph.D., Professor of Microscopic Anatomy in the Northwestern University Medical School, Chicago. Octavo of 400 pages with 368 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, 3.75.

In his introduction the author says: " . . . human embryology is of primary importance because it affords a comprehensive understanding of gross anatomy. . . . Embryology not only throws light on the normal anatomy of the adult, but it also explains the occurrence of many anomalies, and the origin of certain pathological changes in the tissues. From the theoretical side, embryology is the key with which we may unlock the secrets of heredity, of the determination of sex and, in part, of organic evolution." These are words of wisdom. He gives utterance to more wisdom when he says that much work is still to be done; that embryology, one of the young sciences, has still room to grow.

This book embodies a valuable contribution to the growth of this branch of the tree of knowledge. It contains an able presentation of the author's methods and results of dissecting early pig embryos. Of the numerous excellently chosen subjects for illustration, about 170 are original. Preparations and models in the collection of the Northwestern University Medical School have been depicted in a clear and illuminating manner. Chick and human embryos are also well shown by drawings of original sections and reconstructions.

The chapters on organogenesis and histogenesis are concise but complete enough to be satisfying.

The book will make a valuable addition to a library, being well fitted to the needs of graduates and practitioners who wish to refer to special details of embryonic structure and development.

The index is not so complete as it might be. Take, for example, Seessel's pocket. Three pages are referred to: one is incorrect; a fourth reference has been omitted; and the illustration showing the exact location of the structure, fig. 100, p. 111, is not mentioned.

Why was it necessary to make the book so heavy? It is fatiguing to handle and carry about books weighing as much as this one weighs. M. H.

Differential Diagnosis. Presented through an analysis of 317 cases. By Richard C. Cabot, M.D., Assistant Professor of Clinical Medicine, Harvard Medical School. Octavo of 709 pages, 254 illustrations. Philadelphia and London:

W. B. Saunders Company, 1914. Cloth, $5.50; half morocco, $7.

Cabot's second volume on Differential Diagnosis has recently been issued and is a distinct improvement on the first volume.

Although the same methods are used as were used in the first volume, the illustrations, the discussions and the case reports are much more complete, appealing more perhaps to the tried practitioner than the medical student.

Some of the more important subjects discussed are abdominal and other tumors; diarrhea; dyspepsia; hematemesis; glands; hemoptysis; frequent micturition; palpitation and arrhythmia and ascites and abdominal enlargements.

The introduction to each subject is concise and gives one the assurance not only that the author has had an unusually large experience, but that the opinions expressed have only come after deep and earnest study. The tone of the book throughout gives one the same pleasure that the old medical classics give us.

The subject of abdominal and other tumors is most thoroughly handled. This subject alone would justify the surgeon in adding the volume to his library.

The subject of dyspepsia is one that might be read and reread by every internist with great benefit to himself and his patients. Cabot opens the chapter by saying: "The vast majority of the causes for indigestion have nothing to do with the stomach, that is, with any disease of the stomach," and farther on, "The truly gastric causes of indigestion may be reduced almost entirely to two—cancer and ulcer." Statements clear and definite like these are found throughout the volume. Although one may not agree with many of the conclusions they stimulate the physician to endeavor to make a more definite diagnosis, and that by exclusion.

The care taken to have a thorough history, careful physical examination and painstaking laboratory work appeals less to us than the infinite patience shown in the study of the data so obtained and the lack of egoism, throughout the volume. A. S. T.

A Text Book of Diseases of the Nose and Throat. By D. Braden Kyle, A.M., M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Fifth edition. thoroughly revised and enlarged. Octavo of 856 pages with 272 illustrations, 27 of them in colors. Philadelphia and London: W. B. Saunders Company. 1914. Cloth, $4.50 net.

This text-book has long been considered a classic. Each edition, since the original issue of 1899, has been marked by a distinct advance, and the recent fifth revision has brought it thoroughly up to date.

Many new articles have been introduced, among these deserving of special mention being Sphenopalatine Neuralgia; Negative Air Pressure in Accessory Sinus Disease; Vaccine Therapy; Hyperplastic Ethmoiditis; and Lactic Bacteriotherapy.

The subject matter throughout is complete and at times even exhaustive, and is attractively presented.

The text is illumined by many new and improved illustrations.

The book is one that can be heartily recommended to laryngologist, general practitioner and student alike. L. B. L.

Scopolamine-Morphine Anesthesia. By Bertha Van Hoosen, M.A., M.D.

In this small book Dr. Van Hoosen gives her experience with scopolamine-morphine anesthesia, which she has used for the last ten years. her observations being based upon 5,000 cases comprising all kinds of operations except those in the throat, which require an anesthetic of short duration and one from which the patient should recover quickly in order to get the blood out of the throat. She considers this anesthesia unfavorable in Caesarean section and in operations on children, as children bear morphine too poorly to take a sufficient amount for its anesthetic effect.

There were twenty-seven deaths in this series. which is less than 3-5 of 1 per cent. Many of these are clearly not due to the anesthesia, and the figures, therefore, compare favorably with those in which other anesthetics are used.

There is also a report on scopolamine-morphine anesthesia in one hundred obstetrical cases. The technique used by Dr. Van Hoosen differs from that recommended by Krönig and Gauss, both as to doses and in testing amnesia. She uses the "calling test" (that is, inability to answer to a call), and the "incoordination" (that is, inability to make coordinate movements).

The author believes that the first stage of labor is reduced from two to ten hours; the second stage, practically from one to two hours, and the whole labor shortened.

A portion of the book on the mental effects of twilight sleep is written by Elizabeth R. Shaw. The purpose of this portion is to urge the adoption of a uniform and convenient physiological technique for the study of the problem in order that the labors of investigation with this drug may be correlated.

The author is very enthusiastic over this method of anesthesia, an enthusiasm which upon reading the book will probably not be shared by all.

A very full bibliography of the subject is given at the end of the volume. C. B. I.

Speech Problems of the Deaf. We have received from the Volta Bureau, Thirty-fifth street and Volta place, N. W., Washington, D. C., a series of interesting reprints from the Volta Review on the subject of the education of the deaf, especially as regards the teaching of "lip reading." The Volta Review is a monthly periodical which has vigorously advocated the serviceability of lip reading. The titles of the individual reprints are as follows: "Speech Problems in Combined System Schools;" "The Education of the Deaf in Day Schools;" "Methods in Lip Reading;" "A Plea for the Hard of Hearing;" "Teach Your Deaf Baby to Talk;" "Helpful Suggestions to Parents of Deaf Children;" "To Mothers of Little Deaf Children;" "Lip Reading of the Adult Deaf."

Sir Frederick Treves, the well-known surgeon of London, in speaking before the Royal Society of Arts, said the results achieved by inoculation against typhoid fever in the British expeditionary force had been "positively astounding." He said that since the war began there had been only 212 cases, of which 173 were in persons who had not been inoculated. There had been only twenty-two deaths from typhoid, and not a single death from typhoid had occurred among those inoculated.

Colorado Medicine

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Editorial Comment

THE SCIENTIFIC PROGRAM COMMITTEE HAS BEGUN THE CONSTRUCTION OF THE PROGRAM FOR THE STATE MEDICAL SOCIETY MEETING, TO BE HELD IN DENVER ON OCTOBER 5TH, 6TH, AND 7TH, 1915. MEMBERS OF THE STATE SOCIETY DESIRING TO CONTRIBUTE PAPERS WILL KINDLY NOTIFY THE CHAIRMAN, AND SEND TO HIM THE TITLES OF THE PAPERS WHICH THEY WISH TO PRESENT.

THE COMMITTEE COURTEOUSLY ASKS THAT ABSTRACTS OF THESE PAPERS, NOT TO EXCEED ONE HUNDRED AND FIFTY WORDS, BE SUBMITTED WITH THE TITLES OF THE PAPERS TO THE CHAIRMAN NOT LATER THAN JUNE THE FIRST.

S. FOSDICK JONES, Chairman, 250 Metropolitan Building, Denver.

HENRY SEWALL, Majestic Building, Denver.

CRUM EPLER, Pope Block, Pueblo.

HAVE YOU PAID YOUR DUES?

The by-laws of the State Medical Society require that the secretaries of county societies shall make their annual reports to the Secretary of the State Society on or before April 1, and that all members whose dues are unpaid at that time shall be dropped from the roll of the State Society. In the same way the names of those who have not paid their dues are reported to, and are dropped from the roll of, the American Medical Association. Delinquent members may be reinstated upon paying their dues to their county societies, and will then be reinstated in the State Society and American Medical Association upon report being made to those organizations.

Members who have not paid their dues will fail to receive the May number of Colorado Medicine.

THE PAN-AMERICAN MEDICAL CONGRESS.

This country will share some of the losses and hardships which will result from the great war. But the bitter quarrel of the European nations should help Americans in one way at least, and that is by its tendency to throw them upon their own resources. We are all familiar with the invitation to "See America First." This year many Americans will see something of the scenic beauties of their own land because they are excluded from the opportunity of European travel. In like manner the war should stimulate us to develop our own medical resources in the way of clinical and educational facilities.

The parochial spirit is banished when people come together from a distance to exchange ideas. Congresses of medical men are useful not merely for their immediate educational and social value, but because they pave the way for later cooperation in educational and scientific matters. The west coast of the North American continent will see this year a series of medical gatherings which should augur splendidly for the future of medicine on this side of the Atlantic. The central event for the physicians of the United States will of course be the meeting of the American Medical Association, from the twenty-first to the twenty-fifth of June. The Canadian Medical Association has very wisely planned to hold its annual meeting in Vancouver from the sixth to the ninth of July, inclusive. Another meeting, of more romantic interest, in the form of the Seventh Pan-American Medical Congress, will be held in San Francisco before the meeting of the American Medical Association, viz., on June seventeenth to twenty-first, inclusive.

The Seventh Pan-American Medical Congress assembles pursuant to invitation of the President of the United States issued in accordance with an Act of Congress. Included in the Congress are thirty-one of the countries and colonies of the American continents. The majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature. All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is $5 and entitles the holder to a complete set of the transactions. Advance registrations should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California.

The First Pan-American Medical Congress was held in the United States in 1893. Five intervening Congresses have been held in Latin-American countries. It devolves upon the medical profession of the United States to make this, the Seventh Congress, the most successful of the series.

GRADUATE MEDICAL TRAINING.

Education can hardly be regarded as one of the functions of government which have profited by the doctrine of "states' rights." This is perhaps more emphatically true of medical than of general education. It seems highly probable that much of the chaos and inefficiency which so long existed, and have even yet not altogether disappeared, in the training and licensing of men and women for the practice of medicine in the United States might have been avoided under a system of federal supervision or control. The reforms in medical education and licensure which have been effected in late years have come about through a partial voluntary centralization, in the form of agreement as to standards. The next great field of conquest for the medical reformer lies in the department of postgraduate instruction, which is today in much the same state of chaos as existed half a century ago with regard to the undergraduate variety.

Three things are necessary alike for general medical education and for postgraduate instruction in the various specialties: willing and capable teachers, a wealth of clinical and laboratory material and liberal financial support. In the European clinics which have attracted so many American physicians, these three desiderata have been provided; while some American institutions have been able to offer little besides the clinical and laboratory material.

The recent movement for the development of postgraduate instruction in America along more effective lines has had particularly vigorous support from workers in the departments of eye, ear, nose and throat. An excellent beginning in systematized postgraduate teaching of these specialties has been made by the medical department of our state university. Among others farther afield, the university medical school of Minnesota has awakened widespread interest by offering courses of graduate study, arranged in time periods of two and three years, and leading to the degrees of master and doctor of science. The Minnesota scheme also includes the establishment of teaching fellowships in surgery, internal medicine, obstetrics, pediatrics, diseases of the eye, ear, nose and throat, and nervous diseases.

The faculty of the Minnesota University medical school and the medical profession of the state are just now engaged in a rather warm discussion of a new proposal in medical education. Briefly stated, the plan involves the utilization of the clinical and laboratory material of the Mayo clinic at Rochester for the teaching purposes of the state university. The "Mayo Foundation for the Promotion of Medical Education and Research" has been created and incorporated as "the permanent mechanism which, while utilizing the educational and scientific values the clinic affords, can be held distinct from the Mayo clinic as a professional enterprise." (Journal-Lancet, vol. 35, p. 137.) The founders of this organization have provided an endowment fund which now amounts to over one and a half million dollars, and is to be further increased from year to year. The fund has already been conveyed from the hands of its founders, under a trust deed which specifies the purposes for which it is to be used; and if the temporary affiliation with the University of Minnesota now proposed becomes permanent the fund will be turned over to the Board of University Regents. The principal argument against the affiliation of the Mayo foundation with the medical school appears to be that the latter will obtain its financial support and scientific material mainly from the Mayo clinic, which is a private enterprise and conducted for profit. The opponents of the scheme seem to fear that, intentionally or unintentionally, the proposed affiliation would greatly increase the annual revenue of the Mayo firm, which is said at present to exceed a million and a half dollars net. For several years the Doctors Mayo have set aside about half of their income for the establishment of the foundation.

To keep pace with the increasing need and demand for exact scientific training of medical men and women, it is evident that every medical school, whether undergraduate or post-graduate, must be heavily endowed, either out of public or private funds. Local governing bodies are notoriously parsimonious in the provision of money for educational purposes. It seems a pity that educational authorities should need to go "cap in hand" for donations from private benefactors. But for some time to come many of our most laudable public institutions will probably have to look to this source for the wherewithal to accomplish their ideals. Unfortunately, medical education in Colorado has so far had little opportunity to be reconstructed on the basis of "filthy lucre".

OVERCROWDING ON PASSENGER CARS.

Public service corporations exist primarily for their own financial advantage, and not for the convenience of the public. This of course is perfectly proper if we assume that liberty implies the right to squeeze all the profit you can out of the other fellow, regardless of the best interests of those whom you squeeze or of the community at large. But the tendency in the present day is to take a modified view of individual liberty, and incidentally to insist that public service corporations, even more than individual citizens, have duties as well as privileges. Even the City of New York, so long subservient to Tammany and other corrupt influences, is beginning to emphasize this lesson. A recent number of the Weekly Bulletin of the Department of Health of the City of New York publishes a letter from the mayor to the commissioner of health, urging that the Department of Health should forbid overcrowding on transit lines as a menace to health. Acting on the mayor's suggestion, the Board of Health has issued an order pointing out that the numbers of germs of pneumonia, influenza, bronchitis and other dangerous infectious diseases are greatly increased in crowded cars, and ordering certain transit companies so to regulate their service that the total number of passengers on any car at any hour shall not exceed one and one-half times the seating capacity of the car. Of course the corporations affected are indignant. They even threaten to hang out signs merely refusing to take more passengers than the order of the board allows. But the Public Service Commission of New York is required and empowered to see that adequate service is provided, and the result ought not long to remain in doubt.

The conditions of work and residence in all large cities have developed much the same problem as that with which the New York Board of Health is attempting to cope. Denver, with its somewhat scattered population, has suffered for years from the greed of a tramway company which has been slow in reading the signs of the times. When a street car is so crowded that some passengers have to maintain a precarious foothold on the outside steps, there can be no two opinions as to the effect on the public health, to say nothing of comfort and decency. Dumb cattle were never transshipped as vilely. It is not easy to insist, as has long been done on the street railways of Greater London, that a car shall never carry more passengers than it can furnish with seats. But there is at least one important route in Denver on which, not for an hour or two only, but during the greater part of every weekday, the accommodation is disgracefully inadequate. In the interest of public health it is surely time for the Denver city commissioners to establish and enforce a regulation at least as strict as that recently promulgated in the City of New York.

By charter amendment Santa Monica, Cal., has provided that the next mayor of the town must be a physician. The new charter requires that the mayor shall serve as health officer, and that his qualifications shall include graduation from a reputable medical college ~~and at least~~ five years' practice of medicine. The next municipal election will be in December, 1915. This will give time for rejected candidates for the Denver commissionership to open a campaign in Santa Monica.

Worthless Tuberculosis "Remedies."

The U. S. Department of Agriculture has investigated a large number of preparations advertised as consumption cures. In many cases they can not even be regarded as remedies. A "cherry balsam," for example, for the "cure" of "consumption" and "hemorrhage of the lungs," which it was represented would "strike at the very root of the disease," was found on analysis to be nothing but a solution in water and alcohol of opium, sugar, benzaldehyde, inorganic salts and coloring matter. It contained no cherry bark extract or balsam. A more elaborate "cure" consisted of five different preparations which the credulous patient was to take separately. These were first, the medicine proper, the essential ingredients of which were morphine, cinnamic acid and arsenic; second, a tonic which was supposed to contain iron but did not; third, a "cough mixture" made up of alcohol, chloroform and codeine; fourth, a mixture which contained some quinine and a solution of water and alcohol, and fifth, codeine tablets.

Original Articles

DISEASE OF THE SMALL BLOOD VESSELS AS STUDIED WITH THE OPHTHALMOSCOPE.*

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In the space available here it is only possible to call attention to the extent of this subject and to its importance. The vessels seen with the ophthalmoscope are all small vessels. The largest branches of the central retinal vein are rarely one-quarter of a millimeter (1-100 of an inch) in diameter. Seen under the magnifying power afforded by the cornea and crystalline lens, which varies from 12 to 20 diameters, the smallest arterial and venous branches, 0.01 mm. in diameter, (the size of a white blood corpuscle) become distinctly visible. In these vessels pathologic changes can be watched with the ophthalmoscope from day to day, or minute to minute during life. And, since many of the more common vascular diseases occurring in the retina lead to blindness with glaucomatous pain, these same vessels can subsequently be subjected to study by laboratory methods, of microscopy, sectioning, staining, chemical investigation, etc. It is therefore not strange that we have more exact and extensive knowledge of the effects of disease on the retinal vessels than of its effects on any other vessels in the body. Much of what is known of vascular disease as seen with the ophthalmoscope is of that general fundamental character that should be at the command of every student of medical science, every practitioner of the healing art.

Vascular Spasm.—Cases occur in which the sight of one eye is suddenly lost for a few minutes, then vision gradually returns. The patient is usually alarmed by this occurrence, but before he can seek professional aid the return of vision has relieved his anxiety. A second attack naturally produces less alarm; and often several periods of temporary blindness have been experienced before the eyes are examined. When seen in the interval the eye presents no evidence of the condition. In a larger number of cases one or a few attacks occur; then they cease spontaneously and are forgotten, perhaps without the case having even come under ophthalmoscopic examination.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

In a few cases there comes an attack that is not followed by recovery. The blindness is permanent. Such a patient soon seeks expert advice, presenting an eye that shows the evidences of an obstruction of the retinal vessels. In a case of the kind which came to me the previous attacks had each lasted several minutes; and in this one it was not until his eye had remained blind for an hour or more that the patient became alarmed about it. I saw him the next day, when his eye presented all the evidences of complete obstruction of the central retinal artery. It remained entirely blind until his death a year later from typhoid fever.

Twenty years ago Benson (1) reported a case in which he had the opportunity of examining the eye with the ophthalmoscope during one of these attacks of temporary blindness, and found a large division of the retinal artery entirely bloodless for some distance from the optic disk. While he watched it the position of the bloodless portion shifted toward the periphery of the fundus, until it reached a large bifurcation, when it suddenly disappeared. On subsequent occasions with the same patient similar observations were made by others of the clinical staff of the hospital.

Ten years ago, while examining a patient who had complained of temporary obscuration of vision in the right eye, Jamieson (2) saw the retinal arteries fade into white lines, this being followed closely by fading of the veins, until he could not make out their position. After about two minutes the vessels again became visible, and returned to their normal condition. The patient stated that this was similar to the previous attacks.

The best case of the kind has been reported by Harbridge (3). In his patient the attacks occurred for ten days, one day as often as every forty minutes. He was able to observe them repeatedly himself, and to demonstrate them to Drs. de Schweinitz, Zentmayer, and others. There was gradual diminution in the calibre of the inferior temporal artery followed by the other arteries, until they were completely collapsed, and this was followed by a similar process in the veins. This condition continued about four minutes, then the arteries and veins filled in the order in which they had been emptied, and sight immediately returned.

In Lundie's case (4), seen as the attack was going off, the reporter "could almost fancy that a tiny transparent finger and thumb were nipping the artery just as one nips an India-rubber tube." Hoppe (5) reported a case in which the lower temporal branch of the retinal artery appeared absolutely empty on the optic disk, and for one-quarter of the disc diameter beyond it, while peripheral to this the vessel was filled with venous blood. From time to time the emptied portion of the vessel varied in position, and the peripheral blood column was at times broken up. On the fifth day the blood column became bright red, and on the sixth day it had assumed its normal color, and the vessel was nearly its full width. Subsequently the previously empty portion of the vessel became over-distended, presenting a slight aneurysmal dilatation. Hoppe speaks of the condition as one of collapse of the vessel, but gives no satisfactory explanation of the mechanism of such collapse other than arterial spasm.

Most of the patients presenting this condition have been past middle age and have shown evidences of arteriosclerosis. My patient, however, was a man in good health and under 30 years of age. As to possible causes: Jamieson's patient, aged 84, had been taking oil of wintergreen and Haarlem oil, and had a pulse losing one to three beats per minute. Benson's patient was a man of 32, who had suffered from malarial and rheumatic fever. Lundie's patient was a man of 88, with rather feeble heart, but with arteries less hard than usual for his age. Harbridge's patient was a man of 49, who had used tobacco and alcohol to excess, and who subsequently showed evidence of arteriosclerosis. Hoppe's patient, a woman of 32, had been prostrated by a fright, and was delivered of a still-born child twenty-four hours later.

With reference to treatment: Most cases recovered from the single attack, and have subsequently become free from attacks without any clear evidence of benefit from the measures employed. Lundie's patient quickly recovered under the vasodilator influence of a drink of whiskey. Harbridge's patient continued to have attacks regularly under nitroglycerine, potassium iodide and mercury; but they ceased absolutely and permanently after a thorough saline purge. It seems probable that some of the cases of so-called retinal embolism that have been cured by nitrites or massage of the eyeball were really cases of arterial spasm rather than of embolism.

The wider interest of these facts lies in their application to small arteries throughout the body. There is no reason to believe that arterial spasm is confined to retinal arteries. Indeed we know from Raynaud's disease that it is not. The phenomenon of migraine points strongly towards similar disturbance of circulation in the visual centers. The presumption is that spasm may occur in any small vessel in the body, the vasomotor function being liable to abnormality as any other. It is perfectly practical to ask, What symptoms are due to such spasm? Under what general conditions is it likely to arise? What are the general causes, and how are they to be removed? The ophthalmoscope has made its contributions to this branch of pathology. A better understanding of the retinal changes may have to wait until similar phenomena have been studied in other parts of the body.

Permanent Obstruction of the Retinal Circulation.—This was first described by Graefe in 1859. Graefe's patient suffered from endocarditis with aortic obstruction; and the diagnosis of embolism of the central retinal artery seemed fully justified. But the ophthalmoscopic symptoms that followed, clouding of the retina about the posterior pole of the eye, the cherry-red spot in the macula with partial collapse of the veins, are symptoms that we now know also arise from obstruction of the retinal circulation due to causes other than embolism. A great many cases have been reported under the heading embolism of the central retinal artery that were certainly not of that nature, but were due to these other causes. The diagnosis of embolism must rest indeed rather on collateral evidence than upon the changes visible with the ophthalmoscope.

A certain small minority of these cases doubtless are due to embolism. But the majority probably arise from thrombosis of the artery starting in points of endarteritis, while closure of the artery is also likely to occur after thrombosis of the central retinal vein. Harms has pointed out that obstruction of both arteries and veins is frequently the condition found in the eyes that come to removal for absolute glaucoma. The precedence of preponderating arterial or venous obstruction is indicated ophthalmoscopically by the absence or presence of retinal hemorrhages.

Complete obstruction of the central artery is followed in a few seconds by blindness which generally is permanent. The arterial branches show little immediate change. They do not collapse and the blood column is but little altered in color. On the other hand the veins become greatly contracted or flattened in some parts, while other parts may still be partially distended by blood that can be seen to move toward the optic disc.

The other striking early ophthalmoscopic appearance of arterial obstruction is opacity of the retina, which makes the margin of the optic disc hazy, and gives the general fundus near the posterior pole a pale or whitish appearance, interrupted by the cherry-red spot at the fovea and gradually fading out toward the periphery of the fundus. This opacity has generally been spoken of as edema of the retina. But there is little positive evidence of swelling of the retina.

Hancock (6) suggested that the appearances were better explained by the occurrence of a tissue necrosis affecting the superficial layers of the retina. In a case reported by Shoemaker (7), which terminated in death eighteen days after obstruction, Hosmer found the degeneration amounted "to ischemic necrosis." The same view has been endorsed by Coats (8), and seems to me much more rational than the theory of edema. The necrosis is confined to the superficial layers of the retina, the nerve fibres and ganglion cells. Where these are absent, as in the fovea, no change in the color of the fundus takes place. It is admitted that the very similar appearance seen in amaurotic family idiocy is due to degenerate changes in these layers. And similar veiling of the fundus without edema has attended the toxic alterations in experimental poisoning with methyl alcohol.

Primary thrombosis of the retinal vein, a condition which does cause retinal edema along with multiple hemorrhages, does not cause the peculiar veiling of the central part of the eyeground as we see it in arterial obstruction. The later atrophic changes that follow obstruction of the retinal vessels may be quite the same whether the obstruction has been previously arterial or venous.

Partial obstruction of the retinal circulation is more common than is usually recognized, for the ophthalmoscopic symptoms characteristic of complete obstruction are lacking. In the arteries there may be points of narrowing from endarteritis. The obstructed veins may show a general distension with little or no hemorrhage. In neither case is there complete blindness, and the prognosis is good.

One of my patients, a woman of 42 with marked evidence of endarteritis, had been given a prognosis of permanent blindness following an attack that may have been partly due to arterial spasm, or may have followed a hemorrhage into the optic nerve sheath. Although her vision was greatly reduced at first, it subsequently rose to 4-4 mostly, in a small field, and she retained a useful eye until the time of her death four years later.

A man of 42, with vision reduced to 1-10 of normal, complained of shifting interruptions in his field of vision. He saw in certain places "as through rifts in a cloud." There was an uncertain history of early syphilis. The retinal veins were large, tortuous, and markedly irregular in calibre. The retina was distinctly hazy in patches, but not universally so. The arteries were relatively narrow. Amyl nitrite brought up vision to 4-25. After about three weeks vision rapidly improved to normal, and it remained normal while he continued under my observation, a period of twelve years.

Angiosclerosis.—In a large proportion of cases obstruction of the retinal circulation is associated with changes in the vessel walls. The fundus appearances of arteriosclerosis and of the associated condition of renal retinitis have been so frequently described that they need not be dwelt upon here. But a few points that ought to be of interest to the whole profession may be referred to. As Coats observes, the arteries show endarteritis producing irregular narrowing of the calibre of the vessel. The veins show rather a periphlebitis, hiding the whole blood column by a more or less opaque coat.

As was pointed out by Bull (9) disease of the vessel walls is more likely to cause hemorrhage at an early stage than later. This observation has been repeatedly confirmed in my experience. The general explanation has been that the later thickening of the vessel walls enables them to withstand the pressure, preventing hemorrhage. Coats suggests that the activity of the arterial circulation is diminished in the later stages of arteriosclerosis. With reference to these ophthalmoscopic evidences of angiosclerosis the profession at large needs to ponder these remarks of Werner (10): "Every general practitioner admits the necessity of ophthalmoscopic examination in cases, say, of suspected intracranial tumor, whereas, I take it, comparatively few are aware of the importance of such an examination in the class of cases now under discussion. But yet, if we stop to consider for a moment, a cerebral tumor is, comparatively speaking, a rare affection and its treatment unsatisfactory, whereas angiosclerosis is a very wide-spread disease and one in which medical advice and treatment, especially in the incipient stages, may frequently be the means of prolonging life for many years."

Aneurysm.—The early work on arteriosclerosis in the large vessels was so closely associated clinically with aneurysm that most physicians expect to find aneurysm as one of the common evidences of angiosclerosis of the retina, but in reality it is rare. Gowers (11) reported a case and referred to others previously reported. Since then cases have been reported by Fisher (12). Hoppe's case (5) of secondary dilatation of the vessel has been mentioned above. Leber (13) divides miliary aneurysm into two groups: those alluded to above, associated with senile changes; and another group in which multiple aneurysms have been associated with retinal changes resembling circinate retinitis.

Angiomatosis.—A distinct and extremely interesting type of vascular disease has gradually emerged in the literature. It has been known widely in Germany as Von Hippel's disease of the retina, but is called by him *angiomatosis*. Cases had previously been reported by Fuchs, Wood, Collins, and Darier. But it was scarcely recognized as a definite entity until Von Hippel (14) described his case and exhibited it before the Heidelberg Ophthalmological Congress; and later, after watching its progress for sixteen years, was able to examine the eyeball microscopically. The ophthalmoscopic appearances include a large, rounded, reddish body in the retina, entered by one or more dilated tortuous arteries and their accompanying veins. One part after another of the retina becomes affected. The retina becomes thickened, altered, and detached. All sight is lost and ultimately glaucoma intervenes, so that the eyeball has to be enucleated. Seven such eyes have now been studied microscopically.

Recently Meller (15) has put forth the view that the condition is not primarily a vascular disease; but is essentially a disease of the glial tissue of the retina, accompanied by vascular changes. Perhaps only extended collateral studies can decide the question of its essential nature, but it illustrates the extremely close association of diseases of the various parts of the body with vascular conditions. The recognition of angiomatosis as a distinct disease was hindered by its inclusion in the large group of cases of retinitis with massive exudation, some of which are closely associated with disease of the vessels. Retinitis with massive exudate is probably due to various causes. But some cases have been traced apparently to tuberculosis involving especially the vessels.

Tuberculosis of the Retinal Vessels.—Both massive exudation and recurring retinal hemorrhage in young persons have been more and more traced to vascular disease, and particularly to tuberculosis. Cords (16) reports a case of retinal periphlebitis which rapidly recovered under tuberculin treatment, and brings together six others probably tuberculous in character. His case showed periphlebitis, the blood column being in certain parts hidden by a white sheath; and the veins irregular in calibre with peculiar tortuosities, tufts of new-formed vessels, anastomoses, and hemorrhages.

Arnold Knapp (17) records four cases regarded as tuberculous, of which one recovered and another improved under tuberculin treatment. These latter were characterized by recurring hemorrhages into the vitreous. Fleischer (18) records the case of a man suffering from pulmonary tuberculosis, in whom the lesions described by Cords were present in the arteries of both eyes. One eye developed tuberculous lesions in the anterior segment, became glaucomatous and was removed. The microscope showed that the retinal lesions were also tuberculous, some of the veins being surrounded by epithelioid and giant cells.

Syphilis of Retinal Vessels.—Retinal vascular disease due to syphilis is probably more common than that due to tuberculosis. But it has been more frequently described, and therefore needs but little space here. Usually it is recognized under the heading of retinitis; or of chorioretinitis, since the superficial vascular layer of the choroid is very likely to be involved. The circulation through the smaller choroidal vessels becomes interrupted, the vessels largely disappear, and the external layers of the retina atrophy; while the pigment cells disappear, or migrate forming masses that may be located even on the inner surface of the retina. These changes are seen in both congenital and acquired syphilis.

Acute Infections.—Many acute infections, notably influenza, puerperal septicemia, scarlet fever, and cerebrospinal meningitis are liable to cause metastatic ophthalmia and panophthalmitis. The majority of such cases are seen only at a late stage, the general gravity of the disease and the apathy of the patient causing the earlier stages to be overlooked and neglected. But in rare cases like those reported by Rössler (19) and Wiegmann (20) the ocular lesions have come under observation early, and these cases indicate clearly their vascular origin and the general importance of the blood vessels in metastasis. In the retina points of vascular obstruction appear, probably starting with minute bacterial emboli, and quickly extending by thrombosis. These points become foci of local infection, quickly involving all the ocular tissues in the process, which may or may not be suppurative.

Hemorrhage.—Regarding hemorrhage from minute vessels the ophthalmoscope has revealed many things that are of general significance and importance. In the retina hemorrhage is practically a constant phenomenon of acute and subacute inflammation. No sharp line separates transudation of the formed elements of the blood from that of the fluids. The retinal circulation is a terminal one. From the freely inosculating vessels of the choroid hemorrhage is less common, although it probably occurs more frequently than is recognized. The regressive changes undergone by effused blood we have all watched with the ophthalmoscope. Here too the similarity of behavior to that of other exudates into the tissues is striking. The clot becomes decolorized and cannot be distinguished from a non-hemorrhagic exudate; and its ultimate fate may be the same complete removal or retention as a white mass that has undergone fatty change.

Ophthalmoscopic examination has proved that hemorrhage into the retina at birth is quite common. Coburn (21) examined the eyes of 37 infants still-born, or dying before the age of 22 days, and found retinal hemorrhages in seventeen. He collected from various sources the results of such examination in about 700 cases and found hemorrhage in 20 per cent. Stumpf and Von Sicherer (22) examined the eyes of 200 new-born children, finding hemorrhage in the eyes of forty-two. Closely allied to the pressure occurring during birth, is the pressure sustained in certain accidents, as where the body is buried under a heavy weight of earth, causing intense venous congestion of the head and neck as reported by Béal (23). More obscure are the causes of hemorrhage into the retina seen after fracture of the skull, without direct injury to the eyes in the series of cases reported by Fleming (24). The part played by hemorrhage in causing retinitis proliferans is interesting and suggestive. But if, as is now urged, the vitreous is not of mesoblastic origin, but an outgrowth of the glial tissue of the retina, what happens in this condition may not throw much light on the sequels of hemorrhage in other parts of the body.

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DISCUSSION.

Melville Black, Denver: In some cases seen shortly after embolism has taken place, we have a peculiar building up of whitish opaque material which it seems to me can hardly be explained upon any other ground than edema. If it were a fatty change, it would not be present so quickly, and it would not all disappear in a month or so.

In judging of the situation of an embolism, I think the pressure test upon the eyeball I proposed a few years ago is of very great value, because the pressure will completely empty the retina of blood, and immediately upon relieving the pressure you see the vessels refill. This test is carried out with much less pressure than is usually supposed. The least bit of pressure upon such an eye will immediately disclose the ease with which the blood is pressed out of these vessels. It is of value particularly from the standpoint of determining whether or not the embolism is in one of the main branches.

If it chances to be a blocking of the central vein, of course the signs would be entirely different from those that would be produced by an arterial obstruction, but the pressure test here will not avail at all.

C. E. Walker, Denver: As to the causation of the conditions which we find in the fundus of the eye, it is of the greatest importance that we should recognize the conditions which preceded the trouble. The ophthalmoscope should be in the hands of every general practitioner, but it is not, and it is "up to us" to inform the general practitioners of the conditions which we find. There are so many changes in the fundus of the eye due to constitutional troubles that it becomes the duty of the ophthalmologist, as soon as he finds that such a condition exists, to immediately inform the general practitioner in charge of the case. The trouble is sometimes related to the accessory sinuses around the eye ball, but as a general rule, some constitutional trouble is at the foundation of these cases. We should not take sole charge of these cases, but either take counsel with some good general man or turn the case over to him.

H. A. Smith, Delta: The case referred to by Dr. Jackson was as follows: A woman of 33 years was first examined on March 24, 1909. She complained of headache. There was low compound hyperopic astigmatism and exophoria of 4 degrees; vision was 20/20 in each eye; the field of vision was normal. On April 29, 1909, vision was the same in both eyes as at the former examination. There was numbness of the right side of the face, beginning exactly in the middle line, which had lasted about two weeks. It began at the lobe of the right ear, and involved the right side of the tongue and soft palate and the pillars on the right side. For two weeks after the numbness first came on the right eye would turn out until the cornea was entirely out of sight, but this had entirely recovered. The amount of exophoria was as at the former examination; the patient felt well, but had lost ten pounds in weight. The ophthalmoscope showed blurring of the disc of the left eye, and in the right eye very slight blurring with a few apparently nephritic spots. At this time the patient complained of periodic blurring of both eyes, the left more than the right. This would occur once in ten days or two weeks, and there would be loss of vision for from ten seconds to one-half minute.

On February 2, 1911, after using cocaine for dilatation of the pupil, the condition was noted as follows: Right eye, impossible to see any outline of the disc, vessels full and tortuous, numberless small white areas with a few small hemorrhages along the inferior artery, striations from disc outward. Left eye same as right eye, but not so far advanced. In neither case was there any involvement of the macula, and with correction the patient's vision was still normal, but the periodic blurring was more or less according to the condition of fatigue. The blurring would last from ten seconds to one-half minute and the interval would be from one-half to three or four minutes. With the ophthalmoscope the contraction and relaxation of the vessels could be followed distinctly from the periphery to the disc. The patient would call attention to the first signs of blurring, and the wave of contraction would last from ten seconds to a minute, when the arteries would be completely empty and the vein partially so; then slowly the vessels would begin to fill from the discs outward and become overfull. The patient's condition remained about the same until January, 1912, when she died with cerebral hemorrhage. There was no albumin present in the urine.

Dr. Jackson, closing: In reference to "embolism" and as to whether the appearances are due to edema or something else: I think in none of my cases have I noted any swelling of the retina. There was no reason to believe that the retina was thickened. I hope we shall all look into this point during the early stage.

One point in reference to Dr. Black's test: The internists try to test the capillary circulation by taking a cylinder, or something of that kind, and pressing down on the skin and finding how many seconds are required for the surface to regain its color. That is their recognized test for the capillary circulation, the actual capillary blood pressure.

We have in the eye ball, in the pressure that Dr. Black has suggested and the intra-ocular pressure, a very much more exact way of estimating the pressure in the capillary vessels. Perhaps the retinal vessels are under different conditions from others, but the study of this would be very interesting and would give important results.

Regarding hemorrhage from minute vessels, the ophthalmoscope has revealed many things that are of general significance and importance. In the retina, hemorrhage is practically a constant phenomenon of acute and subacute inflammation. I suppose no general practitioner claims to have done his duty to his patient in brain tumor without having an ophthalmoscopic examination. Yet there is not one case of brain tumor to one hundred of arteriosclerosis, and in arteriosclerosis the ophthalmoscopic examination is more important.

THE NASAL TREATMENT OF DYSMENORRHEA.*

L. B. LOCKARD, M.D., F.A.C.S.
DENVER.

It has long been established that a definite physiological and pathological relationship exists between the nose and throat and the sexual organs, particularly in the female, but the clinical significance of this relationship has not been grasped by the profession at large.

Laryngological and gynecological literature, however, have been fairly rich along this line, at least sufficiently so to permit of moderately conclusive deductions regarding the utility of intranasal treatment in cases of painful menstruation not dependent upon organic pelvic disease.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

Before taking up a statistical report of the cases treated in this way, it is important to consider briefly some of the physiological phenomena that show the intimate connection between the two organs.

1. In a large number of women, whose nasal organs are normal, engorgement of the nose occurs regularly during menstruation, and subsides with the cessation of the flow. During this time certain areas in the nose, to which attention will be directed, swell, bleed easily, and are sensitive to touch. The same conditions are sometimes seen during pregnancy.

2. It is a matter of frequent observation that in some women the menstrual life is established by the occurrence of nasal bleeding, which may or may not continue during subsequent menstruations. Epistaxis is likewise frequent in boys at the age of puberty.

3. In women suffering from nasal diseases the condition is nearly always aggravated during the menstrual epoch, and following periods of sexual excitement.

4. In cases of ozena the odor characteristic of this disease is frequently intensified at these periods, and in those who have had atrophic rhinitis without ozena it may develop temporarily.

5. Excessive sexual indulgence is occasionally the cause of nasal disease and, as previously mentioned, often originates attacks of a temporary nature. A large number of cases have been recorded in which coitus was invariably accompanied by violent paroxysms of sneezing, and also in which the same reaction was a result of mere amorous contemplation.

Reflex sneezing, under these conditions, is a very frequent phenomenon, and is also often observed in animals, especially the goat.

It precedes the swelling of the erectile tissues and disappears when this reaction occurs.

In some individuals the reaction is so severe as to simulate attacks of hay fever and asthma. This has been designated the "erotic form."

6. Certain persons invariably suffer from coryza after excessive venery, and the noses of confirmed masturbators practically always show marked hypertrophic changes.

Grayson reported the case of a man who had nasal obstruction with hypersecretion, sneezing and headache, due to sexual excesses. Upon removal of the cause the patient recovered without treatment.

Like symptoms have frequently been observed to disappear after correction of uterine displacements.

7. A further reflex vasomotor neurosis of the nose referable to the genital organs is the so-called "erysipèle cataméniale;" a condition manifested by redness and swelling of the external nose.

From the physiological to the pathological is only one step, and it is easily appreciated how a long continuance of such conditions as have been enumerated might lead to permanent alterations in the tissues.

While most of the examples cited deal with nasal disease as a consequence of sexual disorders, the reverse also obtains, and we have many instances in which derangements of the genito-urinary system have been either produced or aggravated by nasal disease.

The relationship, as pointed out by Fliess, is limited to certain points, which he termed "genital spots." These are the tuberculum septi and anterior inferior turbinal on either side.

Koblanck and Roeder operated on a number of young animals, so as to destroy these so called genital spots, and found that while the animals grew as well as the controls, they remained sexually indifferent, and their genital organs remained practically rudimentary.

Elsberg, one of America's first and greatest laryngologists, called attention to the fact that arrested sexual development might depend upon the existence of nasal disease.

Koblanck believes that the genital spots, as above described, are too restricted, and claims, as a result of numerous experiments, that the sensitive areas may include the entire septum and inferior turbinals, and occasionally the middle turbinals. He has seen swelling of these areas follow applications of cold water to the genitals, and as a result of mere sexual suggestion. That these areas have a definite relationship with remote parts of the body, aside from the genital organs, has been proven by various experiments.

In the Biological Institute of the Charité (Prof. Bickel) studies were undertaken to show the influence of certain nasal areas upon the rhythm of the heart. It was clearly demonstrated that the pulse curve in dogs is remarkably altered by irritation of these parts. The irritation is transmitted through the vagus. Observations were also made upon some typical cases of cardiac neurosis, and upon other cases of simple arhythmia. In all of the cases there was present, in addition to hypertrophies of the posterior ends of the inferior and middle turbinals, a more or less marked deflection of the septum high up. Eight of the cases were cured through nasal treatment. Among the patients were three physicians whose histories were followed with unusual care.

Schiff irritated the noses of fifteen female dogs in order to determine whether in this way contractions of the uterus could be produced. In eight animals no reactions could be obtained; in seven the results were positive. Control experiments by irritation of the sciatic nerve gave very slight if any response.

Linder, in a number of laparotomy patients, observed contractions of the uterus follow irritation of these genital spots.

Fliess, in 1897, was the first to direct attention to the frequent cure of dysmenorrhea by intra-nasal treatment, and his results have since been duplicated by many gynecologists and laryngologists. He found that during an attack of dysmenorrhea applications of cocain to the genital spots would control the pain in the back and abdomen, and in many instances the headache would disappear. The relief lasted until the effect of the cocain wore off. If only the turbinal were anesthetized the headaches ceased, but not the abdominal pain; if one side of the nose was treated the pain on the opposite side was controlled. This localization, however, has not been substantiated by other observers. The same results were obtained as often as these applications were renewed, so to obtain more lasting effects the galvano-cautery and trichloracetic acid were used, with the result that succeeding menstruations were made painless.

Kuttner had one patient who came to him every month for five years, each time gaining complete relief.

Hypertrophy of the genital points does not always produce suffering from dysmenorrhea, for we frequently see them involved in women who have never experienced unusual pain.

The typical symptoms of nasal dysmenorrhea have also been met with in cases of normal and even atrophic conditions of the nose.

Before taking up a statistical study of cases of dysmenorrhea treated in this way, I desire to call attention briefly to certain other abnormalities of the sexual organs, which have likewise been treated along this line.

Koblanck writes, "Of twelve women whom I have treated for sterility through the nose, and whose final history is known to me, nine became pregnant, four immediately following treatment and five some months later. In the list are included only women whose sterility had lasted over ten years."

Emil Mayer treated three cases of amenorrhea lasting from three to twelve months, and in each the flow became regular.

Koblanck says, "I have in many cases, in which unfavorable hygienic conditions have produced sexual abnormalities, seen the resultant amenorrhea cured by nasal treatment."

Myers reports a case of vicarious menstruation in a girl of 23. She began to bleed from the nose when five years old and menstruated only once when 13 years old. After cauterization of the nose she began to menstruate normally. Epistaxis occurred only once in 18 weeks.

M. Falta reports two cases in which menstruation was brought on prematurely by cauterizing the lower turbinated body and genital tubercle.

Many authors report cases in which the

severity of labor pains has been temporarily reduced by nasal anesthetization.

Jerusalem and Falkner studied 80 labor cases in Prof. Chrobak's obstetric clinic, and found that nasal cocainization exerted a favorable effect upon the pains, especially in women who had previously suffered with dysmenorrhea.

Freund has called attention to the fact that the genital tubercles become swollen before the occurrence of labor pains.

Abnormal sexual excitability has also been controlled in a number of authenticated instances by destruction of these so-called "genital spots."

Seven cases of priapism due to nasal reflex and cured by nasal treatment are recorded. Three of these have been reported by Hobbs.

Dr. Nelson Black related to me a case of this nature, in which a man who was being treated for hay fever by application of cocain to the nose, volunteered the statement that the application caused the disappearance of a long standing priapism.

In one of Dr. Hobbs' cases the patient was attacked by a severe rhinitis, with nasal stenosis, headache, and fever; after these symptoms had continued for three days the priapism occurred and lasted for three days. Application of cocain and adnephrin produced relief of the stenosis, with immediate disappearance of the priapism. This case is typical of the others recorded.

Further reports of this kind are not within the province of this paper; the above have been cited merely to demonstrate that the effect of nasal treatment upon dysmenorrhea is paralleled in other conditions, and is therefore not to be considered as a mere accidental occurrence, but as a definite case of cause and effect.

These phenomena have been explained in various ways, but we are still in the dark regarding the exact modus operandi.

Seifert reaches the following conclusions:

1. Many symptoms point to a direct nerve connection between the nose and sexual organs, but the course of this nerve connection is still unknown. There exist certain striking anatomic and physiologic analogies between several parts of the nose and the sexual organs.

2. General circulatory and mechanical conditions have a greater or less modifying influence on the nose as a result of sexual conditions and functions.

3. Numerous pathologic conditions (including many menstrual anomalies and also quite often hyperemesis gravidarum) may be explained by the assumption of a real reflex neurosis, or of a previously existing nasal intumescence with its local and general sequelae.

4. Uterine influence through nasal conditions may be largely explained by suggestion, by cocain euphoria, greater in certain individuals than in others, by relief of a nasal reflex neurosis, and through the restoration of the general health as a result of restored nasal respiration and relief of nasal congestion.

Two of these explanations, those regarding suggestion and cocain euphoria, can be proved to be generally fallacious.

In several of the author's cases, nasal treatment has resulted in relief of menstrual pains without the patient being aware that this object was sought, and without the knowledge or suggestion of any possible connection between the two organs.

Cocain euphoria, though seemingly a rational explanation, is disproved by the facts that the same results can be obtained with other local anesthetics, such as alypin, novocain and menthol: that permanent results are only obtained by cauterization, and that cauterization sometimes will cure cases that failed to respond, even momentarily, to cocainization.

Koblanck and Roeder believe that there is some close connection between the genital spots and the hypophysis. However the chain is established, it is now firmly proven that one organ can be controlled therapeutically, to a certain extent, by treatment directed to the other, and it is to this practical application of the question that I would direct your attention.

A review of recent works on gynecology shows a lack of unanimity as to the effect of nasal treatment on painful menstruation, but a majority of the writers believe it to be of great usefulness.

Crossen says, "There are occasional cases of dysmenorrhea apparently due to reflex disturbances from a distant part of the body. One of the most striking of such reflex connections is that from within the nose; in certain cases the dysmenorrhea has apparently been due to some pathological intranasal condition, and has been relieved by treatment of the same. Under the heading, "Treatment of Dysmenorrhea in Virgins," he says, "In cases when there are any nasal symptoms, and also in the cases relieved by intranasal applications, a rhinological examination should be made to see whether some nasal disease is present. Its removal may so improve the menstrual pain that the patient is saved much suffering."

Hirst has noted a relationship between amenorrhea and the nose, and says "Hypertrophic rhinitis has been known to bear a causal relation to it."

Fritch, in his latest book on gynecology, writes, "I have so often seen the severest dysmenorrhea disappear upon cocainization of the nose, that I now use the procedure before trying anything else."

Kuttner says, "In dysmenorrhea the condition of the genital organs is without significance, they can be either normal or diseased and still respond to this treatment. Whether or not the case is one of nasal dysmenorrhea depends alone upon its response to nasal cocainization. Even in the presence of stenosis, in misplacements and catarrh of the womb, myomata and diseases of the tubes and ovaries, cocainization of the nose should be tried, to determine whether the menstrual pain is due to these disorders or to the nose. Cocainization alone is not always sufficient to determine whether or not a case is one of nasal dysmenorrhea, for cases have been reported in which the pain was finally relieved by nasal treatment, in which cocainization had not any effect."

Koblanck says, "The erectile tissue of the nose is in especially intimate connection with that of the genital organs. In labor one can, through the nasal mucosa, lessen the pains and increase the contractions of the uterus. From the nasal mucosa one can influence certain sequelae of sexual abnormalities and cure definite abnormal sexual disturbances."

Findley writes, "These reflexes would appear to establish, beyond a doubt, an intimate relationship between the nasal and genital passages. The author is inclined to believe that the procedure (nasal treatment) is irrational and will not stand the test of time." This is one of the very few dissenting opinions.

Ephraim treated twenty-four cases with eight good results.

Emil Mayer, in 1913,. reported ninety-three cases of dysmenorrhea, of which eighty-one were followed long enough to allow of definite conclusions; of these forty-eight, or sixty per cent, were cured, fourteen were improved, and in nineteen no results were obtained. In some instances all the well known methods of surgical treatment, dilatation, curettage, etc., had been unsuccessful.

Brettauer, writing of the cases observed by him, most of which were included in Mayer's tables, says, 'The 'cases observed number sixty-six in all, and the results have been so favorable that the nasal treatment of certain forms of dysmenorrhea appears to be an extremely valuable adjunct to the methods heretofore employed for the relief of menstrual pain. Of these sixty-six cases, thirty-three were immediately benefited, that is to say the first period following treatment was painless; seventeen were immediately improved, the former suffering being greatly diminished: fifteen were not relieved at all.

"On April 1st I made an effort to communicate with all patients treated since April, 1910; in eighteen instances no report could be obtained.

"Twenty-two patients report that they are absolutely cured; some of these belong to the early series treated in 1910 and early in 1911, giving a history of from twelve to twenty-four months of absolute relief. Seven of the older cases reported vast improvement, and only five, in addition to the fifteen which were not relieved immediately, reported no benefit. Considering then that in over half the patients treated we were able to afford immediate relief, and that permanent relief was obtained in about one-third, doubt as to the treatment is impossible."

Two cases quoted by him are typical of the results attained.

Case. 1. A young woman who had been dilated and curetted twice without relief. She was immediately relieved by three cauterizations and reports that the relief lasted about one year. Although she suffers somewhat at present, she is infinitely better than she was three years ago.

Case 2. This patient has been curetted several times. She had been advised to have a hysterectomy performed for the relief of her suffering. There was no local lesion. She was completely relieved after three applications and reports a permanent cure on April 1st, 1913, fifteen months after the first application was made.

Of the cases treated by the author only a few will be cited. These have been selected in order to demonstrate that various forms of dysmenorrhea are amenable to this treatment, and that we have no way of foretelling, in an individual case, whether it is one of nasal dysmenorrhea or whether the pain is due to recognized pelvic lesions. Complete failures have resulted in cases in which no pelvic disease has been demonstrable and, on the other hand, some of the most brilliant results have occurred in individuals in whom various uterine and ovarian abnormalities existed. As a general rule, however, it may be said that patients without organic disease of the sexual organs offer the most promising prognosis.

Case 1. Married woman of 23 years, nullipara. Has always had severe dysmenorrhea. Pre-menstrual headache, backache and nausea for from five to seven days, usually confined to bed for one week. Has been curetted, dilated and operated on for retroversion of the uterus. Has large ovarian cyst and endometritis. Cocainization of the genital spots on three different occasions, gave complete relief lasting for about an hour. The nose was cauterized four times in the following month with the result that the succeeding menstruation began painlessly and without any premonitory symptoms; subsequent menstruations have been marked by nothing more than a feeling of general malaise.

Case 2. Unmarried woman of 28. Menstrual cramps so severe as usually to require from two to four doses of morphin. No pelvic abnormalities. Three cauterizations of the genital spots resulted in complete relief during the four succeeding periods, after which the patient passed from observation.

Case 3. Married woman of 29. Has had two children. No pelvic disorders, aside from a lacerated cervix, which was repaired. Menstruation accompanied by unusually severe cramps and sick headaches. Symptoms relieved by nasal cocainization. Several cauterizations, at intervals of one week, produced a striking improvement, although the symptoms were not completely relieved.

Case 4. Girl of 17 years, marked chlorosis and chorea for about one year. Severe pains for several days before and during entire four days of menstruation. Two applications of trichloracetic acid resulted in complete relief.

506 Metropolitan Building.

DISCUSSION.

T. E. Carmody, Denver: With reference to what Dr. Lockard says about sneezing and amorous contemplation, I for a long time had a patient who during amorous contemplation or at the time of coitus had an attack of sneezing, and he had trouble in his nose which would account for it. I operated on him, but I do not know what has happened since that time as regards this symptom.

I have a number of hay fever patients who complain that after the sexual act the hay fever is much worse, but hay fever is a very erratic disease, and I do not know whether this complaint should have any weight or not. We know that headaches due to menstrual conditions are frequently relieved by packing the nose with cocain. I have not seen any cases of priapism cured in this way.

As to the case which Dr. Lockard quotes of pregnancy following correction of nasal deformity, there is a great deal of doubt in my mind. As to nervous conditions, we know a great many nervous conditions affect the nose as well as the sexual organs. The work of Cushing on the relation of the hypophysis to the nasal condition and to the sexual organs is important.

H. G. Wetherill, Denver: I have listened with great interest to this paper and the discussion by my distinguished gynecologic colleagues. I know of no condition which is more difficult to manage and promise results in. Dilating the uterus and curetting has been for me most disappointing. It fails more often than it succeeds, and if Dr. Lockard by means of cocainization of the genital areas in the nose can relieve these very intractable cases, I am sure the medical profession as a whole will be delighted.

There is one phase of this condition which must, however, make us cautious in accepting results. It often yields to psychic influences. Some of the most pronounced instances of relief of dysmenorrhea I have ever seen have been brought about by Dr. Rogers by simple suggestive measures. I have known him to succeed in one or two cases where every other known remedy, both mechanical and surgical, had been tried and had failed, so that in accepting cocainization of the nose for the relief of these conditions we must bear in mind that they are amenable to suggestion and to psychic treatment.

H. A. Smith, Delta: I wish to report briefly a case which was free from psychic effect. A girl came to me five years ago, accompanied by her mother, with the right middle turbinate impinging on the septum. This obstruction interfered with her breathing only slightly, although the anterior end of the middle turbinate was in contact with the septum to the extent of half an inch. I removed a part of the turbinate. Nothing at all was said about any gynecological condition. A year later her mother informed me that she had been relieved of pain during the menstrual period since the nose was operated upon. She was still absolutely free from pain three years later. I think the psychic element may safely be left out of this case.

Robert Levy, Denver: In spite of a great many attempts to prove scientifically that there is a distinct relation between the nose and genital organs, I think we must in the ultimate analysis conclude that many of the remarkable effects reported, if not all of them, are psychic. My reason for saying this is that in attempting to explain the various manifestations occurring in neuroses of the nose one realizes at once the impossibility of offering any logical explanation.

Fliess in 1895 attempted to show the reliability of his results by giving a patient no hint before treatment of what he was trying to accomplish, and in this way to eliminate the possibility of suggestion as a factor in the effect of treatment. Nevertheless, it is almost impossible to disabuse the patient's mind of the intention to relieve her of the condition for which she consults us.

Only last week a young woman with a history of dysmenorrhea for many years was under my care for a throat difficulty. Although numerous abdominal and uterine operations had been performed she had obtained no relief. At the same time that I administered my usual treatment I cocainized and then cauterized the so-called nasal genital areas. She was having her usual pain, the history of which was that it came on with the first sign of menstruation. I did not inform her what I was attempting to do, but my careful questioning concerning her dysmenorrhea must certainly have given her a hint. Upon leaving the chair and in reply to my question as to how she was feeling, she said, "I believe I am feeling somewhat better," and then as she went out said, "I am sure I am feeling much better." One might conclude from this that the patient was improved by the treatment given her without having been conscious that it had been directed toward her dysmenorrhea. Nevertheless if we analyze the situation carefully we do not fail to recognize the possibility of some subconscious influence that has brought about a psychic effect.

In speaking of the cases of headache reported by Dr. Smith, one must remember that this affection, as well as other reflex disturbances, are relieved by the same process of cauterization. Inasmuch as the treatment is alike in all cases and as many of the symptoms are neurotic in character, we must feel fairly confident that the effect produced is largely due to the mental influence.

C. B. Ingraham, Denver: If you resorted to this treatment every month, do you not think it would establish a habit in a neurotic woman?

Professor Cole (University of Colorado): After listening to the remarks made by Dr. Levy, I am not sure but that a remedy could be suggested here by the mere fact of the treatment. There is a certain surrender to the physician on the part of the patient, and a certain similarity between pain in different parts of the body.

F. E. Wallace, Pueblo: I should like to ask Dr. Lockard whether in his opinion injection of urea hydrochlorate and quinin might not be much more effective that the cocain, on account of the lasting effect of the first named combination. In my opinion there certainly is truth in this matter. There must be some very intimate relation between the nasal mucosa and the sexual centers. Whether more than with other parts is hard to say. We all know that the odor of blood will make certain animals ferocious; that the odor of food will attract them, and that the odor of cooking will whet our own appetites. We know that through the sense of smell the male animal is attracted to the female while in heat. No doubt man is influenced to some extent by certain emanations of the female, and probably vice versa. So I say there must be some intimate relations between the nasal mucosa and the sexual apparatus and that applications of certain remedies to the nasal mucosa will be likely to influence sexual symptoms.

C. S. Elder, Denver: I think that gynecology is the Belgium of medicine. It is more easily invaded by foreign foes than any other branch.

I was reminded, when Dr. Wetherill got up to speak, of a story of a knight of old, who was very brave and very courteous. and who, when he found it necessary to defend his position against a woman laid aside his famous sword and took up another one with a blunted point and dull edge. I think when Dr. Wetherill comments upon gynecological observations of our trilogical friends, he lays aside that sword of his to which we are so accustomed and takes up one with a very blunt edge, because he does not care for these cases, and he is willing that the discussion should go either one way or another.

There is no telling, if we are to rest our questions upon a therapeutic test, what is going to cure a woman. The most famous case of extraordinary cure of gynecological disorder I know of is reported in Holy Writ. A woman had suffered for thirteen years with an issue of blood, and it is recorded, very much to our shame, that she had suffered many things from many doctors, and then after that long time she was cured of the trouble by touching the hem of the garment of a religious proselyte.

There are different kinds of dysmenorrhea which are not taken into consideration in this discussion. Certainly Dr. Lockard knows he is not able to cure all cases of dysmenorrhea, and he would probably tell us what cases are influenced by this treatment, and what cases are not. Those cases of dysmenorrhea that we see commonly are in the unmarried or at least in childless women, and after a child is born dysmenorrhea is almost sure to disappear. Cases of dysmenorrhea cannot be wholly mental because they are not erratic as mental conditions are, but in most cases a definite course is pursued. For example, the pain comes on with the flow and lasts for a day and disappears the next day. Now, what would that indicate, to a person who is not spraying the nose with cocain? Would it not indicate that during the first day of the flow there was obstruction to it, and that it disappeared later as the obstruction disappeared, a condition which is exactly analogous with labor. As the pains come on the cervix is dilated, and the process goes on with a smoother course.

Now, Dr. Lockard's theory must not only cure the condition, but it must explain things. That is a good test of a theory. It must explain conditions and this theory does not explain any condition. No doubt he can cure cases of dysmenorrhea by spraying the nose, as suggested by one who has discussed his paper, and when Dr. Rogers talks about the master key to medicine we shall find out he can cure cases of dysmenorrhea also. Nevertheless, we are not so far behind that we have no knowledge of what causes dysmenorrhea. It is in some cases mechanical, and in some cases it is relieved by mechanical means. What good can dilatation and curettage do? We know if we dilate the cervix, in twenty-four hours it is no longer dilated, and curettage never cured anything. That is one operation that we are through with forever, except when the patient has money rather than some ailment.

L. B. Lockard, Denver (closing): The laryngologists are not entirely responsible for the inauguration of this subject, as has been intimated, because it is due largely to our gynecological friends that it has gained its present prominence. Many of the authorities cited are prominent gynecologists, and we have been tied to their chariot and have followed it. We cannot explain these phenomena. Unquestionably in some cases suggestion is responsible for the results attained. It seems, however, from careful observation of many cases, that suggestion is not the sole explanation. A case recently treated supports this view and answers Dr. Elder's remarks concerning the disappearance of dysmenorrhea after marriage, and his suggestion that favorable results from nasal treatment are only attained in the unmarried.

This patient had been married a number of years and suffered from frightful dysmenorrhea, and had been subjected to a number of operations without relief. For three successive months her nose was treated several times with various local anesthetics, without telling her what was being used, each time with temporary relief. On three occasions the anesthetic was followed by trichloracetic acid, and each time the period of relief was considerably prolonged. Such results are frequently seen and cannot always be ascribed to suggestion.

The continued use of cocain is naturally fraught with danger, and it is not used over long periods of time. As to quinine and urea I can see no reason why it should not be as successful as the other anesthetics, but I have not used it.

We do not know in advance what patients we can cure. We see some cases of bad pelvic disease that respond brilliantly, while on the other hand, many without any local abnormalities fail to show improvement. It is simply a matter of trial and hope.

MODERN PSEUDO-MEDICAL CULTS.

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2. Chiropractic.

The various theories advanced by the disciples of mechano-therapy, a form of drugless healing, are based upon the supposition that all disease is due to or caused by a mechanical change or maladjustment which has taken place in some part of the body.

The first of these mechano-therapeutic cults to attain any great degree of popularity was that known as the osteopathic. The osteopath claims that all disease is caused by some mechanical obstruction to the blood supply of the affected parts, and that a cure is obtained by manual adjustments.

It could hardly be expected that this sect would have the whole field of mechanotherapy to itself. And when it began to find favor in the eyes of a sufficient number of people, the inevitable occurred. Other systems and schools arose, each one claiming that its own theory of disease and method of cure were the only true and rational system.

Among the several competitive methods which have arisen since the birth of osteopathy is one whose theory of cure is based on the assumption that all disease is due to abnormal pressure upon the various nerves of the body, and that the cause of disease is corrected when the impingement or pressure upon the affected nerve is removed.

This new "science" of healing is known as chiropractic. "Chiropractic," as stated by one of its champions, is a compound word of Greek origin: cheir, the hand, and praxis, a doing—doing something with the hand. This definition is obviously capable of various interpretations.

The theory and practice of chiropractic are said to have been introduced to the world about 1885 by a so-called magnetic healer of Davenport, Iowa.—one D. D. Palmer by name. Another instance of an ignorant, uncultured but shrewd "discoverer" duping the unsuspecting public!

Chiropractic schools and colleges have

sprung up like mushrooms for the purpose of teaching this so-called science of healing to any having the price of the course, payable always in advance. There are no other requirements for admission. The prospective student's previous education is not taken into consideration. He is graduated with the degree Doctor of Chiropractic and presented with a handsome diploma, after a course of study varying from six weeks to two years.

Although this new "science" was "discovered" about 1885, it did not begin to attract notice until 1895, two years after the osteopathic school began to turn out practitioners.

The evident purpose of this imitator of osteopathy is to fleece the deluded victims of disease by promises of cure. Its obvious intent is that of pecuniary gain. It is an avowed business proposition, run for profit, and attempts to gain its profit in the most dastardly manner, by preying upon the hopes and fears of the sick—of those suffering from incurable diseases and of those whose diseases become incurable by reason of delayed scientific aid, while the chiropractor artistically relieves their "impinged nerves" and their oppressed pocketbooks.

It is generally agreed that in order to take up the study of any science one must have had some preliminary education. No one would for a moment think of trying to master algebra or geometry before learning at least the fundamentals of arithmetic. Nor would one attempt to read Latin before at least obtaining a slight knowledge of one's mother tongue.

At the present time a great proportion of all those who are graduated from medical colleges in the United States have received at least six years' education subsequent to passing through the high school. We are led to believe, however, that, without any preliminary scientific training, and in periods varying from six weeks to sixteen months, a sufficient knowledge of the science of chiropractic may be obtained to enable one to practice this healing art upon unfortunate sufferers from mental and physical infirmities.

The Colorado Chiropractic College of Denver, incorporated, chartered and licensed by the state of Colorado, will for the sum of $250 teach this "science" to "any man or woman of good moral character who is desirous and ambitious to improve his or her social and financial condition, and who possesses a common-school education. No one is debarred on account of age or sex." Nor is the moral character of the applicant or the proof of common-school education inquired into too closely.

Quoting further from the latest annual announcement of this college: "The regular course consists of two terms of nine months each . . . **but the right is reserved to change the length of course and conditions of entrance, whenever, in our judgment, it is to the best interest of all concerned.**"

The Denver School of Chiropractic gives a two-year course of six months each year for $200. There are absolutely no educational requirements demanded for entrance.

Each of these schools advertises to teach certain subjects which are taught in regular medical schools, and in addition, chiropractic theories and practice. The number of hours or the amount of study devoted to the several branches is, however, not stated. Nor are the instructors competent to teach the subjects advertised.

The following extract is from a sworn statement, before a notary, by Asa Willard, who recently investigated one of these colleges: "On January 19, 1915, I visited the Denver College of Chiropractic, at Colfax and Park Avenues, Denver, Colo.

"I called there about 2:30 p. m. Upon expressing a desire to see some of the classes in operation, was told that they only met in the evening, except occasionally a clinic in the afternoon. Was informed that they did not have dissection and laboratory equipment.

"The last class graduated, it was stated, had attended these evening classes for fifteen months, but the present class would be graduated from evening classes in eight months. . . . Said that last year there was a man who taught some in osteology, but this year they didn't have such help."

A letter dated February 10, 1915, signed by the registrar of the National School of

Chiropractic, Chicago, offers a three months' residence course, "virtually the only one you could take in any college where you would be able to prepare and qualify before Colorado passes a chiropractic law of its own, and which would fit you for exemption under the law in ample time. We shall have a new term commencing March 1st. . . . By beginning with the lessons right away you would get over a number of them, at least whatever ones you answered you would receive credit for, or you could read them all over by March 1st and be eligible to enter the practical and clinical courses at once, remaining from six weeks to three months for residence work.

"By attending school in the day time and answering the lessons of the extension course at night you would cut the time in half, and better still, and this intensive work will save you both time and money, and still not cause you to suffer in prestige or proficiency, at the same time placing yourself in line for exemption and benefit of any chiropractic law to be passed in your state on or before June 1st, which all reports indicate will be the case."

It would not do to leave the discussion of these institutions of learning, however, without briefly touching upon the one advertised as the largest in the world; one having a student body "equal to the total attendance of all of the schools (490—Nov., 1912)." Presumably it turns out more chiropractic doctors than all other schools. This, the Palmer School of Chiropractic, located at Davenport, Iowa, the hotbed of the cult, issues a handbill form of leaflet in which it gives: "Its Advantages—In Brief." Among other statements, it advertises (1) "a faculty of eleven, each of whom devotes his entire time to studying, teaching and caring for P. S. C. interests"; (2) "A thorough business organization employing thirty-five assistants."

Here is a faculty of eleven, to look after the teaching of 490 students, but a business organization employing thirty-five assistants to look after other than scientific affairs.

This is one proof of the claim made in this article that chiropractic is an avowed business run solely for profit.

The Palmer school also advertises in the leaflet noted "a dissection room (six tables)." Six dissecting tables for a student body of 490! This would not be a sufficient equipment for a school of this size, even supposing that the tables were used for dissecting purposes, but as a matter of fact there was no dissection whatever, as the school's so-called graduates have admitted when placed under oath.

Having briefly shown that this fake healing system demands no educational requirements for entrance upon its course of study, that it requires a number of hours of attendance totally insufficient for acquiring any proper scientific knowledge of the healing art, and that during this period of study it does not adequately teach any branch of medical science which would enable one to diagnose or treat disease, let us consider what this so-called science does stand for.

It is stated that this alleged science does not "cure disease," but removes the cause of disease, thus enabling nature to effect a cure; but the annual announcement of the Colorado Chiropractic College says: "Chiropractic is the science of **curing** human ailments by locating and relieving impinged nerves."

The followers of this cult do, therefore, advertise and promise to cure disease.

"Chiropractic teaches that the cause of all abnormal function is occlusion of nerve stimulus resulting from impingement or traction of nerve filaments. . . . For example, scarlet fever, chicken pox and measles are now conceded to present their various distinct peculiarities because of the character of the germ or poison producing the particular ailment; all of them, however, being simply fevers resulting from occlusion of stimulus."

All the careful experimentation, study and investigation of disease by generations of scientific men are herewith set at naught by the unsupported statement that all disease is due to "occlusion of stimulus."

The chiropractor not only lauds his theory as correct, but damns those who disagree. His vituperation is particularly aimed at the practitioners of regular scientific medicine and surgery. Thus he states in his mouth-piece, "Progress": "The doctor shall have power—To cause abortion indiscriminately; to commit murder safely; to unnecessarily mutilate girls for life without fear or conscience," etc. Such scurrilous remarks are in themselves sufficient to condemn the slanderer, and comment upon them is not necessary.

The semi-official organ of the chiropractors is a publication called "Progress." Its purpose is stated on the title page, as follows: "**A magazine published monthly by the Universal Chiropractic College, in the interest of chiropractic and chiropractic legislation.**"

In addition to slandering other methods of healing, particularly those of the regular medical profession, the January number of this organ aptly characterizes chiropractic and some of its methods in a few terse sentences by one E. H. Sanford, business manager of the Universal Chiropractic College, under the heading "Chiropractic a Business." Mr. Sanford says: "Your office location is a matter of importance and should be carefully considered; the equipment need not be expensive, but should be selected with care.

"Your advertisements should be carefully placed, and special attention given the wording, so as to appeal as strongly as possible to the prospective patients, who, perhaps, know very little about chiropractic—possibly have not even heard of it.

"First, you must get their attention, then secure their interest; following that create in them a desire to try adjustments, and having accomplished these three things, it only remains for you, by personal interview, to complete the sale, i. e., arrange for a certain number of adjustments at a certain price.

"Don't under any circumstances conduct a fast and loose business. Have definite prices, definite plans and stick to them. It does not pay to waver at any time."

Still more proof that chiropractic is a business, not a profession devoted to healing the sick and injured.

All systems of healing the sick should be under strict state supervision, for he that is ill in mind or body falls a ready prey to the charlatan who holds out promises of cure. The incurable especially grasp at any straw, at any promise of cure, and pay well for the faker's promises of relief.

The chiropractor is bringing every influence he can control to have his quackery legalized by state legislation. He is anxious to obtain legal sanction to work upon the minds and bodies of the ignorant and the ill, and would fain have the protection of the law in treating, at so much per treatment, diseases of the causes and nature of which he is dangerously ignorant.

In the January, 1915, issue of "Progress," Dr. R. G. Schroth, 546 Garfield Av., Chicago, Ill., has a half page inside back cover advertisement headed, "**State Board Examination for Other Practitioner (Chiropractors in Particular.)**" Among other statements made by this advertiser are the following: "You are taught to systematize and classify your knowledge and draw on your own resources as well as get new ideas. **You are even taught to answer questions you know nothing about.**"

This Doctor R. G. Schroth, who teaches one to answer questions one knows nothing about, is said to have graduated in 1904 from the National Medical University, Chicago, an institution reported as fraudulent or not in good standing.

This is chiropractic—a system of Mechano-therapy emanating from the brain of a "magnetic healer." This ignorant faker, taking advantage of the fact that the human mind, when oppressed by disease or tormented by suffering, is most willing to accept any promise of relief, evolves a pseudo-scientific and fradulent system of healing, which he foists upon the credible.

His disciples and followers are granted diplomas authorizing them to use this system of healing after courses of "study" requiring no preliminary education, lacking any semblance of scientific thoroughness, and extending over periods of time in which it would be impossible to obtain a fundamental knowledge of the healing art.

The various schools and colleges granting the degree of Doctor of Chiropractic are run solely for pecuniary gain.

Their published statements prove them to be essentially "business propositions"—as witness the published advertisement of the Palmer school, showing a business organization of 35 and a faculty of 11.

Their courses of study have no definite plan, and are changed at the whim of their proprietors. Their teachers are incompetent and instill false doctrines and theories into the unprepared minds of their students.

These students upon graduation prey upon the ignorant and unsuspecting sufferer for a definite price—prolonging their distress, and in the case of many, endangering their lives.

Their magazine carries an advertisement purporting to prepare them for state board examinations—offering to teach them to answer questions they know nothing about. And we the public, and our legislators sworn to protect us, allow these incompetents to prey upon the hopes and fears of suffering humanity.

432 Metropolitan Building.

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ABDOMINAL SKIAGRAPHY BEFORE OPERATION FOR CHRONIC APPENDICITIS.

CRUM EPLER, M.D.,
PUEBLO.

In speaking of chronic appendicitis, reference is made to that well known class of cases associated with recurrent attacks of pain in and above the right iliac fossa. This pain lasts from a few hours to a few days, and is materially lessened by evacuation of the content of the colon. The main symptom complained of is pain, not well localized by the patient, but existing over the right side, all the way from the ramus of the pubes to the free margin of the liver, and upon pressure of the finger usually found greatest under McBurney's point. The pain is not constant nor alike in all cases, varying in degree and character from a dull ache to a true appendiceal colic. Sometimes the patient will liken it to an overdistention, or to sensation of something trying to squeeze through. Temperature is not high, sometimes subnormal; the pulse is usually accelerated from fifty to a hundred per cent and of a fair quality; usually a slight degree of rigidity over the right rectus is noticeable, but not so marked as in the very acute types of appendicitis. The full force of the attack does not come with its onset, but once begun gradually increases until it reaches its maximum, at which time the physician is usually called.

An anodyne, a good physic, ice to the side, and quiet in bed for a day or two usually put the patient upon his feet with the knowledge of a lingering tenderness in his side but of no apparent need for alarm.

The mere suggestion of operation will usually be refused, and the attacks being recurrent are not considered serious.

Sometimes the insistent surgeon will be able to convince the patient of the lurking danger, and he will yield to surgical interference. The appendix is removed, the operation completed, the surgeon opens the appendix, and to his chagrin searches in vain for pathology. He seeks consolation in the fact that the appendix had a little adhesion about it.

Due to the hospital regime and the post-operative management of the case, the patient is able to leave his bed in ten to fourteen days much relieved, and goes home full of hope and confidence of a speedy return to health.

As the original habits are indulged in, the same symptoms recur, probably not so severe at first, but gradually increasing, until the maximum of pain is as severe as before operation. Naturally some benefit is to be expected, as part of the cause has been removed. As time goes on the recurrences continue, and to the concomitant symptoms are added the typically neurotic. The patient becomes suspicious of the confidence he had placed in the physician and surgeon, and wanders from quack to ism and pathy, and finally, very much disgusted, comes again to the regular practitioner. At this time probably he is referred to the radiologist for diagnosis.

Why the diagnosis after the operation?

There is no emergency in so-called chronic appendicitis demanding surgery, and while this article is not a plea for radiographic diagnosis of appendicitis, it is a plea for its use in ferreting out the associated disease factors.

It is not material whether chronic appendicitis is the cause or result of the pathology nearly always found at other parts of the alimentary canal, for it is a well known fact that floating kidney, gastric or duodenal ulcer, omental or peritoneal adhesions, and deformities in or about the head of the pancreas, biliary passages or gall bladder have associated with them abnormalities of the vermiform appendix. It appears to be the rule too, when this chronic complex pathology asserts itself, that the appendix, perhaps the least of the offenders, cries out the loudest.

Of the fifty cases that have come to my laboratory during the past two years for diagnosis, twenty-one have been ante and twenty-nine post-operative.

The ante-operatives (the appendix being involved to some degree), divided according to the viscera involved, are as follows: Colonic 8; gastric 7; duodenal 3; biliary 1; appendix uncomplicated 2.

The post-operatives were divided as to viscera involved as follows: Colonic 12; duodenal 9; gastric 4; immobile cecum 2; biliary 1; nephritic 1.

The deduction to be drawn from these cases is obvious. And while percentages from one man's small practice are hardly to be considered a criterion, still they form a basis sufficient to justify the plea for more thorough and accurate diagnosis.

It is impossible to determine how many of those operated upon are still sufferers, as they do not all come to the roentgenologist, but it is certain that a very considerable percentage are not relieved of all the causative factors at the time of operation.

From the radiologist's point of view, this is easily understood, because mechanical interferences sufficient to cause the symptomatology heretofore mentioned, are not all found at or about the cecum, but may be found at any part of the digestive tract, causing either direct or indirect symptomatology.

Of the non-operative cases, the percentage in which the appendix vermiformis was the sole and uncomplicated offender seems rather small, being a trifle more than nine and one half. However from personal surgical experience, observations of other surgeons, and roentgenologic findings, in my judgment it is sufficiently high.

In conclusion, it must be acknowledged that operation in acute appendicitis is imperative, and that if not done promptly the case may reflect great discredit upon the surgeon. But it is equally true that hasty operation in the chronic variety may bring condemnation upon the surgeon, unless he uses all modern means at hand to determine the exact pathology.

PARA-OPERATIVE PATHOLOGIC DIAGNOSIS.*

CASPER F. HEGNER, M.D., F.A.C.S., DENVER.

In this day of intensive medical specialization we are prone to be carried away by our enthusiasm for the many refinements designed to assist us. We should not permit our attention to be diverted. Refinements should be used for the purpose of placing our work on a sound scientific basis.

Each major branch of medicine enlists one or more adjuncts in the development of its respective department. These adjuncts can be classed under pathologic physiology and pathologic anatomy.

We will consider that phase of pathologic anatomy which treats of the study of material coincident with operation for its removal. For this subdivision of pathologic anatomy I have coined the term "para-operative pathology." Para-operative pathology is the macroscopic and microscopic study of morbid tissues at and during operations performed for their removal. The field and immediate value of para-operative pathology is very limited, but the limitations do not exclude its application. It has much of merit, though not all direct, and when properly applied is a desirable refinement in surgical diagnosis.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

Para-operative pathology has been used for purposes other than scientific. Because it was neither properly applied nor truly appreciated, and because in its legitimate application too much was expected, it is unjustly repudiated.

The immediate value of para-operative pathology lies in that small group of cases of doubtful nature where a positive report can be given.

A positive report is the only one of value, and must be considered in determining what additional operative measures are necessary. An unexpected positive report is of the very greatest value. It gives the surgeon the best opportunity to so extend his operation as to eradicate the disease, when surgery offers the best and the only chance for a cure. Such reports are all too few, but even these few lend encouragement to the more general and the proper application of para-operative pathology.

A negative report is inconclusive. In consideration of the attending uncertainties and its limited scope, a negative report is often erroneous. Negative reports should not be taken at their face value until they are corroborated by post-operative examination. The omission of post-operative pathologic study is unpardonable negligence.

Prolonged training in the pathological laboratory teaches one to appreciate the value of properly interpreted microscopic study. My surgical work has more forcibly impressed me with the dangers of over-confidence in the para-operative application of such study. Personal experience with para-operative pathology has given me an opportunity to weigh its advantages, to appreciate its limitations, and to value its application.

The immediate value of para-operative pathology is very limited. The remote value of its routine application from an educational standpoint can not be estimated.

Para-operative pathology is at its greatest advantage when preceded by the clinical history and combined with a careful study of the morbid tissue "in vivo." Such study is not always pursued in the management of surgical cases. Many surgeons permit one phase especially, the technic, to overshadow all others. Modern surgery requires much more than a knowledge of technic, and we should guard against such oversight. More mistakes are made through oversight than through ignorance, but both are equally disastrous.

The pathologist as well as the surgeon must be capable. To develop ability he must have experience; to acquire experience he must have constant application. With practice comes improved technic, keen perception and more certain conclusions.

To do creditable work a capable man must have not only good instruments and sufficient time, but also a convenient place in which to work. Every modern hospital should have a well-equipped and properly supervised laboratory. This laboratory should be in convenient relation with the operating room.

Of greater importance is the material upon which the work is done. It should be the best that can be obtained. The gross material must be supplied by the surgeon. The nature and value of this material depend entirely upon his judgment. The surgeon can with advantage have the pathologist assist him in this selection.

Advocates of para-operative pathology attribute errors in diagnosis to the selection of poor material rather than to poor technic.

It may happen that the material is poorly chosen. This is the result of an incomplete examination, or of inability to recognize the pathologic picture presented by the tissues. To meet this contingency the surgeon should seek the aid of one qualified, a specialist, if you please, to interpret this picture. The surgeon will then be doing his full duty, and at the same time he will enhance the value of the pathologic examination. If the pathologist is to share the responsibility he should be given an equal opportunity in the selection of the gross material.

Para-operative pathology is not a court of last resort. It is a stimulus to more careful and to better work. It should be an examination preliminary to more exhaustive post-operative study. The use of para and post-operative pathology in conjunction with clinical surgery coordinates two great factors, and when consistently pursued makes for a degree of efficiency not otherwise to be obtained.

To be a surgeon one must know how to operate. The best surgeon knows how and when to operate, but more important, he knows when not to operate. He possesses that most prized attribute, surgical judgment, which characterizes superior surgeons. This distinction is based largely if not solely on a knowledge of pathology; a knowledge acquired by seeing and studying morbid conditions, before and during as well as after operations. This knowledge enables one to determine more accurately the nature of neoplasms, and in a given specimen to select areas of doubtful nature or of special interest. A report from material selected under such circumstances will be much more dependable and conclusive.

It is the duty of every earnest surgeon to become expert in surgical pathology as well as in surgical technic. His results will be good in proportion to the correlation of these factors. To reap full advantage, the surgeon must enlist the service of the pathologist, not merely as a technician, but for the benefit of his knowledge of pathology.

The gross material may have been well chosen. It is usually only a few centimeters square. From this the pathologist makes a second selection for the microscopic examination. The field of observation rapidly contracts and the value of the report correspondingly depreciates. The report is made on a small part of the whole. It is not dependable unless it be positive. Therefore it is essential for a reliable report that the gross material be selected after careful examination by those best qualified to make it. Constant and earnest cooperation of surgeon and pathologist is the only way to develop this qualification.

The incomplete cooperation of surgeon and pathologist and the usual improper application of para-operative pathology, are seen in the following too frequent mode of procedure: A surgeon operates on a tumor of the breast, removes a piece of tumor, often before it is fairly exposed, or after exposure, from what in his judgment is a suggestive area. He submits it to the pathologist and begrudges the time necessary to make a report. The pathologist seldom examines the tumor "in situ" or "en gros"; rarely is he given an opportunity to see it when it is exposed, and never is he consulted in the selection of areas from which the gross material is taken.

It is evident that para-operative pathologic reports as generally made are not only unsatisfactory and inconclusive, but also dangerous.

Para-operative pathology should not be condemned for defects and errors which are largely due to its faulty application. It should be encouraged, and from its earnest and proper application some information of timely practical value and much of educational value will be derived. It should be a part of the surgical routine in every teaching hospital. It should be practiced whenever progressive and constructive surgery is done.

626 Metropolitan Building.

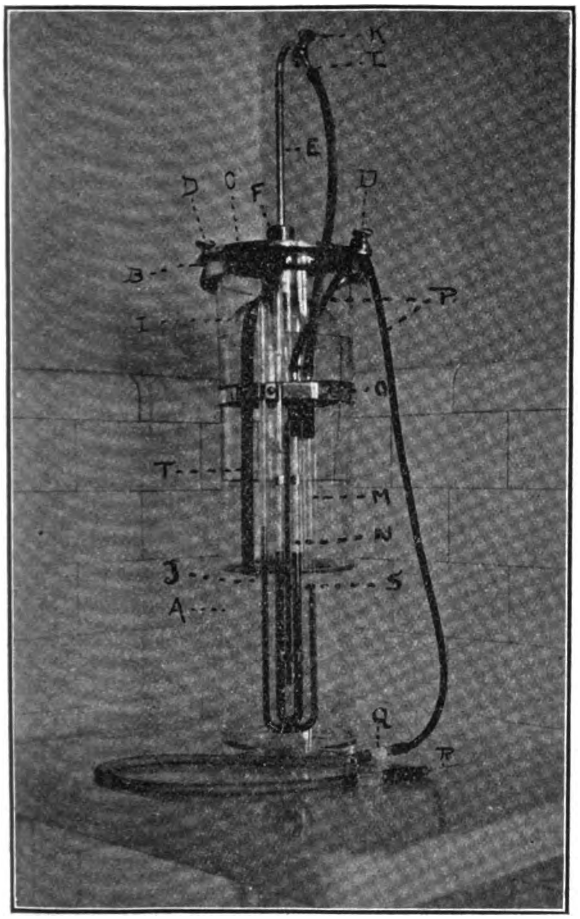
AN APPARATUS FOR ARTIFICIAL PNEUMOTHORAX.

A. W. STAHL, M.D.,
DENVER.

Description.

The apparatus consists of a cylindrical glass jar A, 6″x16″, the top of which has a projecting flange fitted with a rubber washer B and a brass cover or cap C. The cap is held in place by screw clamps D which hook under the flange. The cap C is supplied with a ¼″ opening in its center, through which slides a brass tube E. A set screw F upon the side of this opening tightens upon the sliding brass tube E and retains it at any desired position. This tube E terminates at its lower extremity in a threaded portion fitted with a nut G, which secures it in a perforated rubber stopper H, in the neck of a 2,000 c. c. bottle I. This bottle I situated within the glass jar A has a ¼″ opening J in the center of its bottom. The brass tube E communicates with the contents of the inner bottle I through the perforated stopper H; then passes up through the opening in the cap C of the jar A and is of sufficient length, so that when the inner bottle I is at the bottom of the jar A, this brass tube E still projects a few inches above the cap C, then bends at an acute angle, where it is supplied with a stop valve

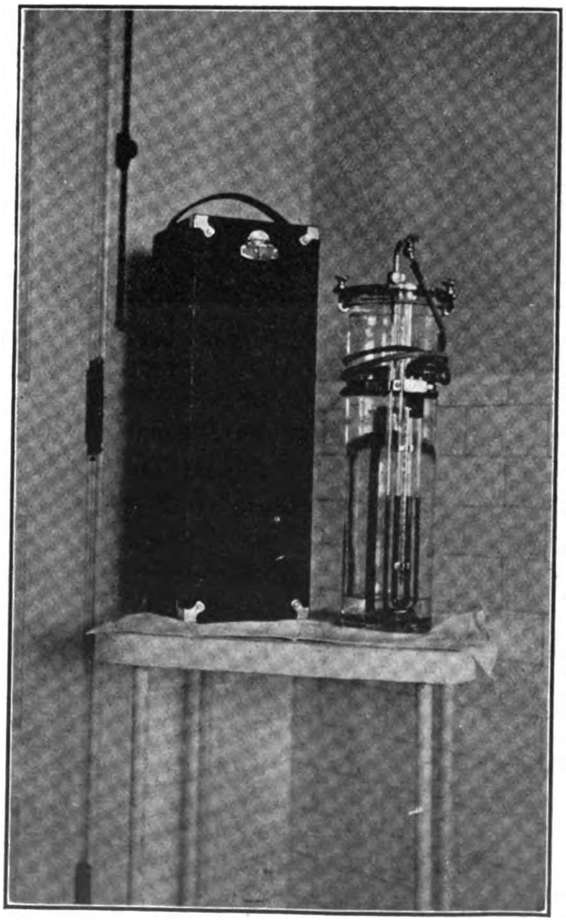
K and finally terminates in a connection for a rubber tube L. This rubber tube L is attached at its lower extremity to the outer, M, of two manometers which are held in place by a brass band. This band is rubber lined and clamped around the glass jar A. The outer manometer M communicates with the inner manometer N by a small needle opening fitted with a special pin control valve O. To the inner manometer N is attached a rubber tube P, which is supplied near its middle with a filter Q, and terminates in an attachment for the pneumothorax needle R. The manometers are supplied with an adjustable scale S. The inner bottle I is fitted with a removable brass scale T graduated to every 100 c.c. All metal in the apparatus is brass and is nickel-plated.



Apparatus for Artificial Pneumothorax—Fig. 1.

Directions for Use:

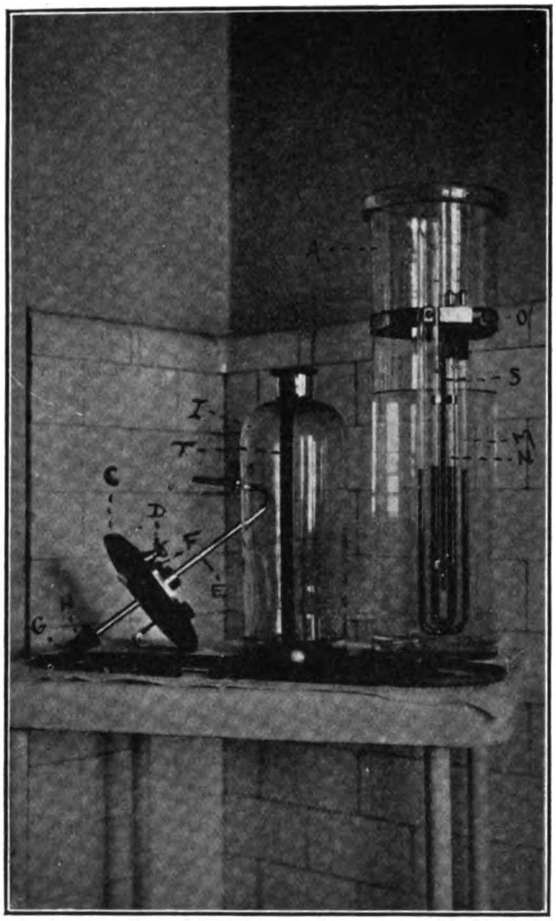
After thoroughly cleansing and sterilizing the entire apparatus, lower the inner bottle I to the bottom of the outer jar A and close the valve K. Fill the outer jar A with sterile water, through the opening provided in the cap C. Disconnect rubber tubing L from brass tube E and open the valve K, allowing inner bottle I to fill with water from outer jar A. Connect brass tubing E with gas generator and fill inner bottle I with desired gas, nitrogen, oxygen or air. Close valve and reconnect rubber tubing L. Both manometers M and N should be filled with water to the O mark. (This water may be colored if desired.) Close pin control valve O and put apparatus in carrying case to transport to place of operation. When ready to operate place apparatus on a table near the patient. Loosen set screw F at top of cap C, permitting bottle of gas I to slowly ascend to top of outer jar A. Open top gas valve K and close pin control valve C. Gas pressure is registered upon outer mano-



Apparatus for Artificial Pneumothorax—Fig. 2.

meter M. Inner manometer N should be at O mark. The apparatus is now ready.

Under aseptic conditions produce local anesthesia at desired location on thorax and puncture with pneumothorax needle R. The inner manometer N will now register the intrapleural pressure. If this reading is satisfactory the control pin valve O is opened slightly and the gas allowed to enter. The amount of gas is registered upon scale T on inner bottle I. Perfect control of intrapleural pressure and rapidity of gas flow is obtained by control pin valve O. If greater pressure is desired, gas bottle I is lowered in outer jar A and held in position by set screw F on cap C. If more than one gas is desired, as nitrogen and oxygen, a separate smaller tank and bottle containing the oxygen can be connected with the apparatus through a T connection placed in the rubber tube L between gas valve K and outer manometer M. Aspiration can be accomplished by allowing the inner bottle I to fill with water from the outer jar A. Then secure inner bottle I at top of jar A, reversing relation of water level in inner bottle and outer jar and causing a negative pressure within the inner jar.



Apparatus for Artificial Pneumothorax—Fig. 3.

Advantages.

1. The manometer, graduated scales, gas bottle, water reservoir, valves, etc. are combined so as to be easily seen and readily adjusted.
2. The sliding brass tube and set screw permit of easy adjustment of gas pressure.
3. The two manometers give accurate reading of gas pressure and of intrapleural variations at the same time.
4. The control pin valve gives absolute control of inflow of gas and permits gas to enter at any desired pressure, negative or positive.
5. The amount of rubber tubing and number of stoppers are reduced to a minimum, thus lessening the liability to leakage and repairs.

506 Metropolitan Building.

News Notes

It is at last definitely announced that the long awaited addition to the Metropolitan building in Denver will be made during the coming summer. Three additional stories are to be built, at an estimated cost of $100,000. The medical men and dentists of Denver and Colorado have good reason to be proud of the Metropolitan building. Since its erection rather more than four years ago, it has almost always been fully occupied. With its accommodations for the medical and dental societies, and as the home of Denver's splendid medical library, it has brought a large number of the most alert medical men of Denver together in a fashion which has meant much for the promotion of good feeling and scientific progress.

It is stated that the accommodations of the three new floors are already completely engaged. A number of the remaining tenants of the Stedman building are said to have planned to remove to the Metropolitan building when the new floors are ready.

At the city election in May, the Denver voters will be asked to sanction the issuing of bonds to the amount of $500,000 for much needed improvements and alterations at the County hospital, for building a nurses' home and a new kitchen, for erecting a smallpox detention hospital and detention premises at the Steele and County hospitals, and for acquiring additional land in connection with these proposals.

The Denver Health Department now requires every physician whose practice does not exclude obstetrical work to make a monthly report to the department, stating whether any obstetrical cases have been attended during the preceding month. Recent prosecutions of doctors in the police court have shown that only 60 per cent of births were recorded in the city bureau of vital statistics during 1914.

The remote consequences which may follow failure to record a birth are illustrated by a case lately reported in the Denver newspapers. A man living in Springfield, Mass., was unable to obtain a passport from the United States government because he could not show a certificate of his birth in Denver twenty years ago. Fortunately the physician who had officiated at the birth was still in Denver, and was able at this late date to make amends for his earlier omission.

A list published by the Pharmaceutical Era names about 900 drugs or mixtures as coming within the restrictions of the Harrison anti-narcotic law which went into effect on March 1st. The list does not seem to be accurate in referring to holocaine as a derivative of coca leaves.

Recent rulings by the Collector of Internal Revenue state that preparations used for oral, nasal, or ocular administration are not exempt from the provisions of the law; but that dentists and medical specialists (oculists, aurists, etc.) who administer minute quantities of the drugs referred to in their offices may keep a record of the date when a stock solution is made and of the date when it is exhausted, without recording the name and address of each patient to whom the drug is administered. Practitioners must actually be absent from their offices to come within the exemption of Section 2, Paragraph A. of the law.

A committee of the Chamber of Commerce of the United States of America is studying the question of uniformity in food and drug regulation. Various provisions of federal and state laws in these matters conflict or override one another. Thus federal and state laws generally permit the use of seven certified coal tar dyes for coloring foods; but in Minnesota and North Dakota the same dyes are condemned as unwholesome. In Pennsylvania the pure food law allows the use of these dyes in all foods, while the fruit syrup law of the same state prohibits them as injurious. In Connecticut a barrel of potatoes to be legal must contain 172 pounds, while in Tennessee the barrel needs only to weigh 150 pounds. Many other instances of the same kind are given in an address recently made before the National Chamber of Commerce by Charles Wesley Dunn.

Several Denver physicians and a Denver drug clerk were recently fined for issuing and filling prescriptions for narcotics to habitual users. The city health officer stated that the existence of the federal law would not interfere with the enforcement of the city ordinances.

Two "drug fiends" were arrested in Trinidad, Colo., for having broken into and stolen morphine from the offices of two local physicians.

Former friends and acquaintances of Dr. Harry Packard, medical missionary, have been much interested in newspaper reports as to his courageous action during disturbances in northern Persia. Curiously enough, although Dr. Packard studied and practiced medicine in Denver, at least one newspaper referred to him as having lived in Pueblo and Colorado Springs, but had no information about his having lived in the Capital City.

The program of the weekly "babies' clinic" at the Metropolitan building, Denver, has recently included talks by Dr. Lingenfelter on "The Care of Contagious Diseases," and by Dr. Healy on "Dislocations and fractures."

The list of probable candidates for the Denver health commissionership includes the names of Drs. W. H. Sharpley, O. R. Hayes, W. A. Sedwick, C. S. Elder, Sherman Williams and H. H. Martin.

Dr. Mary E. Bates has been kept pretty busy lately in connection with the Judge Lindsey-Representative Howland "scrap" in the Colorado Legislature. It appears that Dr. Bates and Judge Lindsey do not love one another.

Announcement is made of a proposed new hospital for Denver, $150,000 of the cost of which is said to have been subscribed by a Boston philanthropist. According to one statement the new hospital is to be for the care of "persons who are without means to visit a regular hospital and yet who do not care to go to a public institution." Another report limits the number of free beds to twenty.

By the death of Dr. George H. Stover on March 25th the Denver profession has lost one of its brightest scientific minds. Dr. Stover was a pioneer in his chosen work, of the intricacies of which he had an extraordinarily thorough grasp. His enthusiasm unquestionably produced disastrous results on his health. By his will he left his medical library and records to the Denver County Medical Society. Dr. Stover was a native of Fort Collins, his father having represented Larimer county in the Territorial Legislature, and having been a member of the convention which framed the Constitution of Colorado, adopted in 1876.

Dr. J. A. Rink died at his home in Denver on March 19th, aged forty-one years. He leaves a widow and a daughter aged six years. He was a graduate of the Denver and Gross Medical College.

At the annual meeting of the staff of the Children's Hospital, Denver, on March 10th, Dr. George B. Packard was unanimously reelected president, Dr. Tracy R. Love was elected vice president, and Dr. T. E. Carmody was reelected secretary of the staff for the ensuing year. The board of directors of the hospital is working on the preliminary plans of the proposed new hospital building, and expects to start in a short time on the campaign for raising the necessary funds.

Dr. Charles A. Powers writes from Nassau. Bahamas, where he has been staying, that he will sail on April 22nd for New York, and expects to be in Denver about June 15th, after attending the meeting of the American Surgical Association in Rochester.

Dr. and Mrs. G. F. Libby are spending the month of April in San Diego and other parts of California, where they will visit several friends.

Dr. and Mrs. George F. Roehrig have left for a six weeks' stay in California.

Dr. W. W. Grant will read a surgical paper at the meeting of the Texas State Medical Society on May 4th to 6th at Fort Worth. Dr. Rodman will also deliver an address at the same meeting. On his way west to San Francisco in June, Dr. Rodman will probably stop off in Denver, where he may address the Denver County Medical Society.

On March 28th Dr. W. W. Grant gave a public health address at Del Norte.

On March 19th at the Hotel Metropole, a number of Denver physicians and pharmacists had the pleasure of listening to after-lunch talks by Mr. Murphy, superintendent of the Coffin Packing Company, on the preservation and packing of meats, and by Mr. Lynch, state food and drug inspector, on matters of interest to physicians and pharmacists, and connected with his department

Dr. A. I. Hayes of Victor is said to be on the way to recovery from the injuries which he sustained in an automobile accident some time back. The accident is said to have been due to the breaking of the king-pin of the steering apparatus of his machine.

Dr. R. C. Adkinson of Florence was slightly injured on March 19th, when two electric light poles with their wires, heavily weighted with snow, fell across his automobile.

Dr. A. E. Disbrow has been awarded a judgment of $1,350 against the City and County of Denver for injuries sustained on April 13, 1913, by collision between his automobile and a rope which had been stretched across the street in connection with the free performance given by the Canadian Opera Company at the City auditorium.

Dr. H. G. Wetherill has been away on a trip of about three weeks to Galveston and other Texas points.

The vice abatement bill has passed on third reading in both houses of the Colorado Legislature.

Dr. G. B. Packard announces the removal of his offices to room 216 Metropolitan building.

Dr. E. T. Boyd has removed to room 206 Century building.

Dr. M. J. Krohn has moved his residence to 2220 High street, Denver.

The stork has apparently gone over to the woman's suffrage cause. Drs. W. C. Finnoff, H. G. Garwood and O. D. Wescott have all been accepting congratulations on the arrival of potential suffragettes in their homes.

The members of the Fremont County Medical Society were entertained at evening dinner by Dr. and Mrs. Herman C. Graves on March 29th. The dinner was followed by the regular monthly business meeting of the society.

Dr. Paul C. Capps, the Indian Agency physician at Ignacio, has been transferred to the Department of Commerce and will shortly leave for the Philippine Islands.

Dr. C. R. Geith of Wellington has sold his office and practice to Dr. R. L. Gleason. Dr. Geith expects to spend some time in study and rest.

Dr. E. C. Webb, late of Indianapolis, has located at Cañon City.

Dr. N. D. Wells, a Nebraska practitioner, has decided to locate at Briggsdale.

Colorado Springs Notes.

Dr. George B. Gilbert of Colorado Springs and Mrs. Eleanor Drane Lilliard of Piedmont, W. Va., were married April 6.

Drs. H. W. Hoagland and D. A. Vanderhoof spent the month of March in California.

Dr. Wilbur F. Martin and family are on a trip through the Pacific coast states.

Dr. B. B. Grover of Colorado Springs was a candidate for the office of commissioner of public health and sanitation at the city election April 6.

Dr. L. W. Bortree recently returned from a visit with relatives in California.

Dr. Crum Epler of Pueblo was a recent visitor to Colorado Springs and the Pike's Peak region.

The following card was left at the residence in Colorado Springs of a woman who is awaiting the arrival of the stork: "A. F. MacKay, M.D., Colorado Springs, 1047 cases of confinement without a loss, conscientious charges."

Dr. L. H. Beck of Manitou took a short business trip to Ohio late in March.

Dr. A. H. Peters, El Paso county physician, who has been incapacitated, has now resumed his practice.

Dr. J. H. Smith was seriously burned in a gas explosion in his own basement on March 26th.

Pueblo Notes.

Mrs. E. A. Elder, wife of Dr. Elder, died March 16, after an illness of several months. The body was taken for interment to her former home in Ohio.

Dr. F. E. Wallace, state representative from this district, has been kept quite busy in Denver during the last month.

Dr. William Senger is doing post-graduate work in the New York clinics.

Dr. H. A. Black, who has been quite ill for the past three weeks, is now able to resume his practice.

Dr. W. B. Davis, well known in Pueblo, and acting American consul at Guadalajara, Mexico, recently had a narrow escape from imprisonment by Carranzista troops.

Dr. Crum Epler, secretary of the State Medical Society, announces that he will limit his practice to general surgery, with special reference to clinical and Roentgen diagnosis.

On March 31st Dr. H. T. Low was married to Miss Estella J. Fariello.

Constituent Societies

CITY AND COUNTY OF DENVER.

The regular meeting of the **Denver County Medical Society** was held on March 2, 1915, Dr. W. W. Grant presiding.

Dr. Helen Craig was elected a member of the Society.

Dr. Edward Jackson moved that the Society indorse "Senate Bill No. 88," which is "An Act Concerning Nuisances and Providing Penalties and Procedure With Relation Thereto." This was unanimously carried.

Under the scientific program a paper was read by Dr. Phillips M. Chase entitled "Some of the Newer Ideas in Surgery and Obstetrics." He spoke of eleven cases of "Twilight Sleep" seen in the New York hospitals and was favorably impressed with the method. The paper was discussed by Drs. Burns and Parsons.

An interesting paper was read by Dr. Cuthbert Powell entitled "Modern Pseudo-medical Cults," which has been published in Colorado Medicine.

Dr. W. H. Crisp spoke of a communication received from the Pennsylvania State Medical Society in regard to a national agitation for the further control of cancer, it being desired that all state medical journals should make their July number a special one for cancer subjects.

H. R. STILWILL, Secretary.

The regular meeting of the **Denver County Medical Society** was held on March 16, 1915, Dr. W. W. Grant presiding.

A paper was read by Dr. O. M. Shere, entitled "Surgical Aspects of the Present European War." He spoke of the various forms of injuries received and the most common antiseptics used; the English preferring carbolic acid, while the

Germans and French used more iodine and bichloride of mercury. The most fatal infections have come from tetanus and gas bacilli. The pointed bullets and not the "dum-dum" have been the most fatal. The percentage of fatalities has been 3.48.

Dr. Ranulph Hudston read a paper on "The Medical Aspects of the Present European War." He spoke of the prophylaxis, vaccines and various serums used.

Dr. Grant called the attention of the Society to a luncheon to be held March 19, at which time representatives of the packing houses and pure-food officials would discuss the preservation and care of meats.

Dr. C. E. Edson read a communication received in regard to the "Physicians' Travel Club," which expects to be in Denver June 9, en route to San Francisco. He suggested that a clinic and entertainment be arranged at this time for the physicians in attendance. Motion made and carried that such an entertainment be arranged.

H. R. STILWILL, Secretary.

EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held at the Antlers hotel on March 10, at 8:15 p. m., with the President, Dr. McConnell, in the chair, and thirty-three members and one visitor present.

The Executive Committee reported that the application of Drs. G. L. Sharp and H. B. McCorkle for membership in the Society would be balloted upon at the April meeting.

Dr. Daniels reported that Mr. Skinner, collector of internal revenue, was ill, and would report later when a meeting could be held with him.

Dr. Stevens reported that the magazines for the year had been ordered, except those donated by the members.

Dr. Allen presented a proposition from the Elks' Club in regard to moving the library to the Elks' Club and having the Society meetings at the club. It was moved, seconded and carried that a committee be appointed to confer with the Elks and draw up an agreement along the lines outlined and then move the library to the Elks' Club.

Dr. O. R. Gillett, city health officer, reported upon the condition of the public health.

Program.—Dr. J. B. Crouch read a paper on "Spontaneous Pneumothorax in the Tuberculous." Dr. C. O. Giese presented two cases and Dr. J. J. Mahoney one case of spontaneous pneumothorax. The paper was discussed by Drs. Mahoney, L. G. Brown and Webb.

G. B. GILMORE,
Secretary.

LAS ANIMAS COUNTY.

The Las Animas County Medical Society met in regular session March 5, 1915, Dr. Freudenthal presiding.

Dr. Jaffa delivered the paper of the evening on "Chronic Inflammation of the Bladder."

It was voted by the Society that resolutions of condolence be drawn up by the Secretary on the death of Dr. W. M. Woods, that a copy of the same be forwarded to his family and a copy reserved by the Society.

C. W. PRESNALL,
Secretary.

PUEBLO COUNTY.

The **Pueblo County Medical Society** met in regular session March 16, 1915, President Taylor presiding.

Dr. Bulette, chairman of the Library Committee, reported that the library of Dr. Dorland would soon be ready for the Society hall.

Dr. Fred Heller was the essayist of the evening and presented a paper on "Medical Treatment of Chronic Gastro-intestinal Conditions." The discussion was opened by Dr. Taylor.

Two clinical cases were exhibited before the Society by Dr. Pattee. Both of them had been operated on for senile cataract.

A motion was made and carried that the fee bill as amended and reported by the Society as a Committee of the Whole be adopted.

A motion prevailed that the whole Society attend the funeral of Mrs. Elder, deceased wife of our fellow-member, Dr. E. A. Elder, and that the following committee go with the body to the station: Drs. Baker, Keeney, Robe, Epler, Pattee, Lord, Stoddard and MacLean.

The Society adjourned.

J. H. WOODBRIDGE, Secretary.

The regular meeting of the **Pueblo County Medical Society** was held April 6, 1915, upon the invitation of Dr. Hunnicutt at the State Insane Asylum. Dr. C. F. Taylor presided.

Dr. Hunnicutt had prepared for the evening a splendid clinic on the subjects of "Paresis" and "Dementia Praecox." He presented three clinical cases of each disease, illustrating as many stages and types, and went briefly into their histories and cardinal symptoms. These points were discussed further by Drs. La Moure and C. W. Thompson.

The evening proved a very enjoyable and unusual one, as so far as could be recalled, this was the first time the Society had been invited to be present at this state institution.

The Society extended a vote of thanks and appreciation to Drs. Hunnicutt and La Moure for their valuable clinic.

J. H. WOODBRIDGE, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

The regular meeting of the **Colorado Ophthalmological Society** was held at No. 11 Stedman Block, March 20, 1915, Dr. E. E. McKeown in the chair. There were twenty-three members and three visitors present.

Dr. Edward Jackson, as chairman of the committee to arrange for a two-day mid-summer meeting of the Society, stated that July 22 and 23 had been decided on as the dates, and this was ratified by the Society. The committee, consisting of Drs. Edward Jackson, J. J. Pattee and E. R. Neeper, was continued and given full power to make all arrangements for said meeting.

Dr. Jackson stated that he was in receipt of a letter from Dr. Julius Hirschberg, honorary member of the Society, who said that he had completed his book on "American Ophthalmologists" and that he would be pleased to inscribe it "To the Colorado Ophthalmological Society." The Society deputized Dr. Jackson to convey to Dr. Hirschberg its appreciation and acceptance of his offer.

Dr. Melville Black presented a man with lowered vision and but little to account for it. Dr. Jackson was quite sure that he found distinct, though minute, lesions in the macular regions of both eyes.

Dr. Black also presented a man who a year ago had seriously injured his left eye. Seven months ago he had contracted syphilis. He now came with iritis and some optic neuritis in the right eye. The important question to be decided was whether or not the eye condition was purely specific or whether there was a sympathetic element in it. The members generally believed it to be specific.

Dr. W. F. Matson presented a man with greatly lowered vision, who four years ago had begun to have blurring of vision and some headache which had now become severe in the region of the occiput. Fundus details not clear in either eye. Urinalysis negative. Blood pressure, 150 mm. Hg.

Drs. Black and W. C. Bane believed that there was slight cupping of the discs. Dr. Black believed lowered vision due to hazy vitreous.

Dr. G. F. Libby presented a man, aged 21 years, with congenital ptosis and palsies of the external ocular muscles, accompanied by nystagmus and defective vision. Patient had four brothers with "bad eyes."

Dr. W. C. Bane showed a man with iritis that was rapidly recovering. There was no specific history and Wassermann was negative, but Dr. Black was inclined to believe the case of specific origin.

Dr. W. A. Sedwick reported a case of extensive sub-conjunctival hemorrhage in which the patient had a systolic pressure of 240 and a diastolic pressure of 116 mm. Hg. Blood pressure was greatly reduced and the extravasation disappeared quickly under chloral hydrate, 4 grs. t. i. d.

Dr. Boyd reported an unusual case of papillomata of the eyelids, which was attributed to acanthosis nigricans, a rare affection characterized by verrucous skin lesions and pigmentation.

Dr. H. M. Thompson reported a case of iritis which from results of treatment was proved to be due to pyorrhea alveolaris.

Dr. Black reported the case of a man who complained of headache and had come for glasses. Examination revealed numerous retinal hemorrhages, with blood pressure 220 mm. Hg. Hyaline and granular casts with albumen were found in the urine. He called the attention of the Society to what would probably have happened had the man consulted an optician.

Dr. Black also reported the case of a girl of 18 who had given up housework because of violent headaches; examination disclosing neuroretinitis. He spoke of the rarity of albuminuric retinitis in one so young.

E. T. BOYD, Secretary.

THE SOLLY TUBERCULOSIS SOCIETY.

On January 24, 1914, the physicians of Colorado Springs met at luncheon at the El Paso Club to discuss the advisability of forming a society devoted solely to the study of tuberculosis. The gathering being entirely in favor of this idea, the society was formed, and the following members elected to hold office for the ensuing year: Charles Fox Gardiner, M.D., President; Boswell P. Anderson, M.D., Vice President; Joseph J. Mahoney, M.D., Secretary-Treasurer.

The society was named "The Solly Tuberculosis Society," in loving memory of the late Dr. S. Edwin Solly of Colorado Springs. Meetings were held once a month except during the summer season.

Since the foundation of the society the following subjects have been brought before the society for discussion:

January 24, 1914—"Lung Surgery: Review of Recent Observations in Europe," Dr. Chas. F. Stough.

February 27—"Tuberculin as a Diagnostic and Therapeutic Measure," Drs. Gilbert, McConnell and Martin.

May 5—"Surgery in the Tuberculous," Dr. D. P. Mayhew.

June 9—"Tuberculosis in Children," Dr. G. B. Webb.

October 20—"Laryngeal Tuberculosis," Dr. W. V. Mullin.

November 29—"Artificial Pneumothorax," Dr. J. J. Mahoney.

January 16—The society was the guest of the management of Cragmor Sanatorium. Dr. Foster gave a talk on the development of the sanatorium idea from its earliest date to the present time.

February 16—"The X-ray as a Diagnostic Help in Pulmonary Tuberculosis," Dr. L. G. Brown.

J. J. MAHONEY, Secretary-Treasurer.

Book Reviews

Borderline Diseases. A Study of Medical Diagnosis with Especial Reference to its Surgical Bearings. By J. N. Hall, B.S., M.D., Professor of Medicine in the University of Colorado; Visiting Physician to the Denver City and County Hospital and to St. Joseph's Hospital, and Consulting Physician to St. Anthony's Hospital and Mercy Hospital, Denver, Colo.; Member of the American Medical Association, the American Climatological Association, the American Therapeutic Society, the American Academy of Medicine, etc. With 150 illustrations in text and one plate. Two volumes, cloth, $12.00. New York and London: D. Appleton & Co., 1915.

The physicians and surgeons of Colorado and the surrounding states have awaited with keen interest the appearance of Dr. Hall's "Borderline Diseases." Their hopes and expectations have certainly been fulfilled in the production of this work, for in it they find a great variety of human ailments not only discussed, but brought out in new and interesting fashion. The reviewer finds it difficult to pick out the most salient features, since there are so many worthy of note.

The subject matter handled is much the same as that found in other text books on medicine. but the manner in which it is handled is entirely different. From the very beginning one is impressed with the importance of noting every detail in regard to diagnosis.

The author first points out the important things in the examination of the patient—significance of pain, paresthesia and many other symptoms. After describing the practical methods of examination, including the body fluids and special senses, he devotes a section to physical diagnosis, examination of the nervous system, blood, etc.

Dr. Hall then takes up the subject of the clinical application of these diagnostic methods. Every point is given its true value and the sum total weighed carefully before decision is reached. In his characteristic manner he has put his statements of facts in brief, emphatic and decisive form, making clear the points which are so important in the determination of conditions which as a rule are left unsettled.

This is true of every section of the work, but in portions dealing with conditions involving the chest and abdomen, the author has shown his surpassing ability to determine once and for all the existing pathology and, what is quite as important, to determine what course shall be followed in treatment.

Dr. Hall's vast experience in rare and unusually interesting conditions lends a touch of the personal which is out of the ordinary. His style is clear, logical and concise, and he has systematized a mass of fact which heretofore have been dealt with only vaguely.

Many points are brought forth which are distinctive of the author's observation and acumen. as for instance the navel sign in appendicitis, and the diastolic shock in aneurism. The reader is impressed with the simplicity and thoroughness of the handling of the subject.

Being well illustrated and conveniently arranged, this work will not only serve as a ready reference in every branch of medicine and surgery but may also be taken as the latest word of authority along all lines.

Operative Therapeusis. Edited by Alexander Bryan Johnson, Ph.B., M.D. In five volumes. D. Appleton & Co., 1915, New York and London.

This work is essentially a collection of articles written by fifty contributors. These contributors were selected from men living in Greater New York City exclusively. Many of the articles are, in fact, exhaustive monographs. They necessarily reflect the practices and methods as taught and used in New York hospitals.

Many of the contributions are of real value, others less so. The work on the whole contains little that is new.

The chapter on Aseptic Surgical Technic in **Volume I** contains a list of the commoner germicidal chemicals. After stating that bichloride of mercury should be placed at the top of this list, the author goes on to say that it has but little power to penetrate unbroken skin, and forms on raw surfaces an albuminate of mercury which is a serious barrier to further activity of the drug and that the destruction of healthy surface cells is of more harm than the value of its application. But little reliability should be placed on its use for sterilization of the patient's skin or surgeon's hands, and it should not be employed in sterilizing metal instruments. Just why with these drawbacks it should be recommended above other germicidal chemicals is not quite clear. In this chapter iodine, which is now so universally used, is given slight notice.

The general remarks concerning the proper use of sutures are good. More emphasis might with propriety be laid upon the inadvisability of using tight sutures, which is of such universal practice.

The recommendation that silk should never be buried except occasionally under cover of peritoneum can hardly be accepted in view of the recommendation of Professor Halsted of Baltimore and the excellent results he obtained with this material.

The methods suggested for sterilization of the operator's hands are good, simple and efficient; and the directions for using rubber gloves should be carefully taken to heart by all doing operative surgery.

The résumé following the article on local anesthesia contains the most sensible remarks concerning this method of anesthesia which the reviewer has had the good fortune to see.

Dr. Crile's excellent teachings as to anoci association deserve far more consideration and space than the one page which is given to the explanation of his work.

The articles on Blood Vessel Surgery and Operation on the Nerves are valuable and interesting.

A few pages are devoted to a very brief description of radium and its use in surgery.

Volume II contains some rather good suggestions concerning post-operative treatment, both general and regional. Speaking of diet the author very aptly says "There are various grades of defective preparation"; and again, "The presence of food ought to stimulate the appetite, not annihilate it."

His remarks regarding the purging of patients before operation should be taken to heart. "The more thoroughly a patient is purged, or the more drastically the lower bowel is emptied by means of enemata before operation, the surer is such a patient to suffer from post-operative distention."

The greater portion of this volume is devoted to a consideration of the various branches of bone and joint surgery, amputations, and surgery of the face and head, including the brain.

Volume III contains articles dealing with the Eye, Ear, Nose, Mouth, Neck, Thorax, Spine and Abdominal Wall. Under the consideration of tonsillectomy, Mathews' finger enucleation is given first consideration and apparently holds first place in the author's opinion. This opinion, I believe, is not generally held.

The articles on Goitre and on the Surgery of the Breast deserve especial mention, the latter being well illustrated and containing much of value in a small space.

(The fourth and fifth volumes will be noticed in the May issue of **Colorado Medicine.**) C. P.

Clinical Diagnosis. A Manual of Laboratory Methods, by James Campbell Todd, Ph.B., M.D., Professor of Pathology, University of Colorado. Third Edition, revised and enlarged. W. B. Saunders Co., Philadelphia, Pa.

It is a pleasant task to review for Colorado Medicine the work of a colleague who has labored among us for many years to advance scientific medicine in this state. Many a physician owes his inspiration for employing laboratory methods in his practice to the lectures he heard when a student in the classes of Professor Todd at the Denver and Gross or University of Colorado Medical School. This manual, however, has multiplied his pupils a hundred fold by finding a receptive audience in many of the medical schools of the country and among thousands of practitioners. It is a familiar object in the hospital laboratory, where the well-thumbed volume is a constant source of reference for the internes.

Its great popularity is due to the conciseness with which the various clinical laboratory methods are expounded. One does not have to wade through an exhaustive description of a dozen different ways to determine the presence of a certain constituent, say, of the urine. Just one or two select methods are given briefly and clearly without any padding—methods that are not mere compilation from other sources, but tested out by the author. The fact that the book has had a run of three editions in a comparatively short time attests its great usefulness.

With an eye to the doubts and questions that arise in the mind of the novice as regards the technic of various chemical, microscopic and serologic methods, a large number of useful hints are given throughout the book to assist the student in his research.

An interesting chapter on that sadly abused instrument—the microscope—forms a valuable introduction to this manual. Even photomicrography is given space. In fact, there are found here useful methods in clinical diagnosis not available in more pretentious text-books.

Besides the examination of sputum, urine, blood, stomach contents, feces and other secretions and excretions, there are valuable chapters on animal parasites, bacteriologic methods and the preparation and use of vaccines.

In the latest edition a chapter has been added on sero-diagnostic methods, including the Abderhalden test, from the pen of Dr. Ross C. Whitman. The new edition also gives the new urease test for urea, the urochromogen test in tuberculosis, the luetin reaction and others.

The illustrations are well chosen, a great number being from original photomicrographs made by the author.

Although Dr. Todd's long residence in our midst, the esteem in which he is held by the profession and the personal friendship of the reviewer might occasion suspicion of partiality, we are, nevertheless, secure in the conviction that his little manual should be on the desk of every practitioner. We are but echoing the sentiments of numerous friends and admirers of Dr. Todd in wishing him health and strength to bring out many future editions of his "Clinical Diagnosis." P. H.

Medical Electricity, Röntgen Rays and Radium, With a Practical Chapter on Phototherapy, by Sinclair Tousey, A.M., M.D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Second edition, thoroughly revised and greatly enlarged. Containing 798 practical illustrations, 16 in colors. Philadelphia and London: W. B. Saunders Co., 1915.

The second edition of this book is an even more massive volume than the first. That a volume of 1219 pages should be considered necessary for the adequate presentation of the subject is an eloquent testimony to the rapid strides made within a short space of time by this branch of medicine. A fourth or more of Tousey's treatise is taken up with an explanation of the more theoretical and scientific aspects of those principles of electricity which are applied in medicine, and although the subject is one which cannot be satisfactorily comprehended except by thorough laboratory training, the author's printed explanations are praiseworthy for their clearness. The numerous published advances in technic and in the therapeutic application of radioactivity are well represented in the new edition, the names of writers being given particularly in regard to matters which have not yet been verified by universal experience. Among subjects of recent interest diathermy, sinusoidal currents and radiography with intensifying screens are noted. The book has been enriched by the inclusion of Machado's tabular classifications of ionic medication and the therapeutic working of the galvanic, faradic and sinusoidal currents. Under phototherapy are discussed new lamps and the physiologic effects of their rays. About forty pages are devoted to radium. L. L. P.

Annual Report of the Surgeon General of the Public Health Service of the United States for the Year 1914.—The scope of public health activities has been so generously increased by the act of Congress, under date of August 14, 1912, that the current report of Surgeon General Blue marks a new era in the federal investigation of communicable disease.

This law authorizes the Public Health Service to make comprehensive studies of the diseases of man and conditions influencing their extension. It provides also for an extensive inquiry into the pollution, either directly or indirectly, of the navigable streams and lakes of the United States. With characteristic zeal the Service has attacked the pressing problems presented under the latter clause, and has assembled a vast amount of information bearing on this latest development in preventive medicine. The U. S. Geological Survey has cooperated in the necessary hydrographic studies. Chemical, bacteriological and biological investigations of navigable waters have been made, especially intensive along the Ohio and the Potomac rivers, and the coastal waters of the Atlantic and Gulf seaboards. In addition, numerous municipal water supplies have been examined, and the groundwork established for a nation-wide inquiry into this common source of enteric disease. As a whole the report well repays careful reading. J. W. A.

Diabetes Mellitus; Designed for the Use of Practitioners of Medicine. By Nellis B. Foster, M.D. J. B. Lippincott Company, Philadelphia and London. 1915.

The literature which deals with the many complicated problems associated with the physiology and pathology of diabetes mellitus has reached such enormous proportions and grows so rapidly that the average practitioner not deeply interested in this particular disease finds little time or inclination to pursue reports of new work into the various special journals where they are largely to be found. The present monograph should appeal to those who wish a concise survey and conservative evaluation of this work, correlated with older facts and theories. Most theoretical considerations and conclusions based upon insecure experimental evidence have been pruned away or are very conservatively dealt with, and the result is an adequate presentation of what seems at present fairly well established in our knowledge of the disease, with the important experimental evidence upon which this is based. The chapter on treatment deserves especial mention for conciseness and practicality, and is well illustrated by citations from the author's own cases. It should be noted that the book is well written throughout and very readable. C. N. M.

International Clinics; a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, etc. Vol. 1, Twenty-fifth Series, 1915. Philadelphia and London: Lippincott Company. Price, $2.

The present volume includes a good review of our present knowledge of the action of emetin in amebic dysentery; a good, though somewhat sketchily written article on the use of graphic methods in cardiac diagnosis, and a very hazy paper on vaccine therapy. The article by Case on "X-ray Diagnosis of Gastric Cancer," and that by Brooks on "The Heart in Syphilis," are excellent. The paper by Cornwall dealing with the blood pressure is also very good. In the section on surgery, the "Surgical Clinic of John B. Murphy" receives further publicity. More important are a practical paper on the "Hogden Suspension Principle in Fracture of the Femur" and an interesting report on "Chorionepithelioma." C. N. M.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Volume IV, Number I. (February, 1915). Octavo of 185 pages, 41 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published bi-monthly. Price per year, paper, $8; cloth, $12.

This first issue of Volume IV of "The Clinics" adds a most interesting and highly instructive number to the brilliant work of John B. Murphy. By one glance over the following headlines one can readily see why "The Clinics" are so popular and what an immense amount of information is to be derived from them:

Intestinal fistulas. A diagnostic talk followed by four cases with comments; including a table of various kinds of intestinal fistulas. Here Murphy likens the "expectant treatment" of appendicitis unto the "waving of a red scarf before the bull." He suggests "expectant mortem treatment" as being more appropriate.

The relation of cancer research to the clinical aspects of cancer, by H. R. Gaylord of the New York Institute for the Study of Malignant Disease.

Aneurysm of the brachial artery with endoaneurysmorrhaphy.

Division of the brachial plexus at the level of the first rib, suturing of the divided nerve trunks.

Mixed round and spindle-cell periosteal sarcoma of the right femur. Disarticulation at the hip.

Open reduction of a posterior dislocation of the spine at the level of the second lumbar vertebra—laminectomy.

Old compound fracture of the right malar bone. resulting in loss of the external wall of the orbit. Outward dislocation of the eyeball. Unsuccessful paraffin injection. Successful bone transplantation.

Ununited birth-fracture of the clavicle. Ends freshened and united with a Lane plate after invagination.

Carbuncle of the arm. Septicemia. Metastatic pleurisy. Death.

Contracting cicatrices on index finger and thumb. Excision. Plastic operation.

Lacerated wound of thumb. Emergency case.

Malunion of a fractured femur with great angular deformity. Open reduction and plating. Hemorrhagic cyst at the fracture site.

A talk on a case of gangrenous appendicitis operated the previous evening.

In this intensely interesting number one is brought into the very clinic itself, into the presence of Murphy with his familiar "Let the record show." A. W. S.

The Tuberculosis Nurse; Her Functions and Her Qualifications; a handbook for practical workers in the tuberculosis campaign; by Ellen N. La Motte, R.N., Graduate of Johns Hopkins Hospital, Former Nurse-in-Chief of the Tuberculosis Division, Health Department of Baltimore; Introduction by Louis Hamman, M.D., Physician-in-Charge Phipps Tuberculosis Dispensary, Johns Hopkins Hospital. Price, $1.50 net.

All physicians should read this interesting little book. For many years all civilized nations have been striving to down the white plague. Great minds have been devoted to this purpose, millions of dollars have been expended. Thousands of articles have been published and sent broadcast throughout the land, and wonderful results have been obtained. Still this great work is only in its infancy, and in order to carry it on, to build it up, and to finally reach the coveted goal, the death of this world-wide evil, more vigorous efforts must be stimulated; everyone, everywhere, must concentrate his energies to this end. It is not possible to reach all classes through publications, through lectures, through sanatoria, clinics, doctors, etc., and the tuberculosis nurse has therefore been instituted. This necessary, busy, intelligent worker has come to the front in this great campaign; and it is for the purpose of stimulating interest in and giving information about the tuberculosis nurse, her functions and qualifications, that this valuable handbook for practical workers in the tuberculosis campaign has been published. A. W. S.

New and Nonofficial Remedies, 1915; Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to January 1, 1915.

The present edition of New and Nonofficial Remedies marks the tenth year of the existence of the Council on Pharmacy and Chemistry. Since 1907, when it was published as a modest pamphlet, New and Nonofficial Remedies has grown to a volume of 426 pages. It may be fairly said to contain descriptions of all the worth-while proprietary and nonofficial remedies now on the market in the United States. Further, it is the only book or publication which contains comprehensive and trustworthy discussions of the composition, source, properties and dosages of proprietary remedies. As every physician should be informed about new remedies, even if he has little use for them, a copy of the book should be in the possession of all. It is not too much to say that a physician who is not familiar with New and Nonofficial Remedies is doing his full duty neither to himself and his profession, nor to his patients.

In addition to the individual descriptions of drugs and preparations, the book compares the value of the newer remedies with the established drugs which they are designated to displace. It also contains, as a supplement, a list of references to discussions of articles not admitted to New and Nonofficial Remedies which have appeared in the Journal of the American Medical Association, in the Annual Reports of the Council on Pharmacy and Chemistry and in the Reports of the A. M. A. Chemical Laboratory.

Paper bound copies will be sent by the American Medical Association, 535 North Dearborn Street, Chicago, postpaid, for 50 cents; and cloth bound copies for $1.

NATIONAL CONFERENCE OF CHARITIES AND CORRECTION.

The National Conference of Charities and Correction will hold its forty-second annual meeting at Baltimore, Maryland, from May 12th to 19th, under the presidency of Mrs. John M. Glenn of New York. The program on "The Family and The Community" will include a study of "The Psychology of Co-operation." Prof. Henry R. Seager of Columbia University will give an address on the "Causes and Remedies of Unemployment." The program of "Health" will be under the chairmanship of Dr. Richard C. Cabot of Boston. It will include a series of discussions on the social responsibility of the hospital and practical methods of special work in connection with hospitals, the chief speaker being Dr. William H. Welch of Johns Hopkins Hospital, Baltimore. The following topics will be presented: "A Pay Clinic for Persons of Moderate Means." "The Distinction Between 'Intensive Cases' and 'Short Service Cases' in Hospital Social Work," and "Social Education of the Physician." A number of topics of interest will be discussed, including the question of prostitution, and the state care of the insane, feeble-minded and epileptic.

THE COLORADO STATE MEDICAL SOCIETY.

(Incorporated November 1, 1888.)

The Next Meeting Will Be Held in Denver, October 5th, 6th and 7th, 1915.

OFFICERS, 1914-1915.

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Vice Presidents, 1st, Ella Mead, Greeley; 2nd, V. A. Hutton, Florence; 3rd, M. R. Fox, Sterling; 4th, L. C. Bolton, Cedar Ridge.

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Term Expires, 1915—L. H. McKinnie, Colorado Springs; Alternate, O. D. Wescott, Denver. 1916—H. R. McGraw, Denver; Alternate, F. R. Spencer, Boulder.

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Bent County, first Tuesday of each month; P. A. Leedham, Las Animas.

Boulder County, every Thursday; C. L. La Rue, Boulder.

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Tri-County; C. W. Merrill, Burlington.

Weld County, first Monday of each month; J. W. Lehan, Greeley.

"Sanitary Conditions in Alaska," by Emil Krulish (U. S. Public Health Reports, reprint No. 194), deals with diseases existing in the natives of some twenty villages in Alaska and includes an examination of about 3,000 men, women and children. Tuberculosis affects 7.9 per cent, including all forms, of which the pulmonary type is 5.4 per cent. Approximately 50 per cent of all such cases are hemorrhagic. Syphilis affects 2.8 per cent of all the natives examined, especially among those living near white settlements. Eye diseases are very common, trachoma being found in 2 per cent. Adenoids and enlarged tonsils are very prevalent and rheumatism is common. Epidemics of infectious diseases are numerous and nearly always fatal, owing to the lack of race immunity and to complications. The Bureau of Education is fighting these conditions, but is hampered by inadequate appropriation.

MEMBERS OF THE STATE SOCIETY DESIRING TO CONTRIBUTE PAPERS TO THE SCIENTIFIC PROGRAM FOR THE STATE MEDICAL SOCIETY MEETING, TO BE HELD IN DENVER ON OCTOBER 5TH, 6TH, AND 7TH, 1915, SHOULD AT ONCE NOTIFY THE CHAIRMAN OF THE SCIENTIFIC PROGRAM COMMITTEE, DR. S. FOSDICK JONES, 250 METROPOLITAN BUILDING, DENVER, AND SEND TO HIM THE TITLES OF THE PAPERS WHICH THEY WISH TO PRESENT.

Colorado Medicine

OWNED AND PUBLISHED BY COLORADO STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE.

Melville Black, M. D., Denver
L. B. Lockard, M. D., Denver
A. J. Markley, M. D., Denver

EDITOR, Wm. H. Crisp, M. D. Majestic Building, Denver

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Editorial Comment

THE NEW COLORADO MEDICAL PRACTICE ACT.

(The following statement, signed by six physicians who in legislative matters represent a number of medical organizations in the State of Colorado, is published in the interests of a wider appreciation by the physicians of the state of the conditions under which the new medical licensure law was enacted. It should be carefully read by every Colorado practitioner of medicine.)

In "Colorado Medicine" for February, under the heading "The Medical Licensure Bill", a statement was made showing the conditions under the Medical Practice Act of 1905. It was stated that the reason for the new Medical Practice Act was mainly to eliminate the osteopathic exemption clause, and in order to obtain the support of legislators, it was thought necessary to recognize the rights acquired by osteopathic practitioners through the exemption clause. These rights were dealt with in House Bill No. 178, by making provision for licensing persons legally practicing medicine in the State who had an educational qualification equivalent to that claimed by the osteopaths in their national organization, viz: graduation from a college which required, prior to January 1st, 1908, a personal attendance of two years of nine months each, and not less than two thousand hours of instruction work, and, subsequent to that time, three years of nine months each, and not less than three thousand hours of instruction work; all future applicants to be subject to the same examinations as heretofore required for licensure.

When the bill was introduced, we found to our sorrow that the average legislator is very strongly imbued with the idea that medical men, as a class, are inclined to be autocratic, and that unless they are curbed in their ambitions, a medical trust would be established which would prevent all further progress in matters of healing. A vicious opposition lobby has so impressed the average layman with the idea of selfishness on the part of the medical men, that a plea for educational standards which would apply to all who practice the healing art is treated as a subterfuge to gain an unjust advantage over the newer, and what are thought by some the better methods of healing. After a vicious lobby in the interests of the chiropractor, and a more or less full discussion by the House, our efforts to establish a single standard of licensure by recognizing the legal rights of those who had been exempted under the present law, resulted in our bill passing the House with an amendment providing that "Nothing in this Act shall be construed to apply to the practice of chiropractic", which amendment had but thirteen votes opposed to it.

Any one who has followed medical legislation in Colorado, and who knows the effect of the osteopathic exemption clause, will recognize at once that there was absolutely no gain made, as it is a matter of indifference whether an exemption clause be applied to the practice of osteopathy or to the practice of chiropractic, in either instance the effect being that any "faker" or uneducated person may open an office, call himself "doctor", and proceed to practice the healing art by manipulative means, without a license.

Subsequent to the passage of this bill with the chiropractic exemption clause, the House proceeded to pass a measure known as the Chiropractic Bill, which provided for the appointment of a board of chiropractors to license persons to practice chiropractic. This bill passed with practically no opposition whatsoever except the votes of the doctors in the House. As it has been the purpose throughout the history of medical practice legislation in Colorado to establish one board to control licensure in the healing art, this action of the House, in direct opposition thereto, rendered it necessary for those who represented the medical profession to make some further concession in the interest of the single board. To meet the demands of the House and yet eliminate the exemption clause from the bill, an amendment was offered (and, with some modification, passed) which provided for the licensure of chiropractors, whose practice was defined to mean "the treatment of disease or morbid conditions of human beings by palpation, nerve tracing and adjustment of vertebrae by hand." The amendment further provides that "such license shall not confer upon licentiates the right to practice surgery or obstetrics, or to prescribe drugs or to administer anaesthetics." "Any person holding a license to practice chiropractic who shall practice medicine otherwise than is included in the practice of chiropractic, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished as provided in Section 13 of this Act." (Section 13 is the punitive section for practicing medicine without a license.)

In the act as finally passed, provisions are made for a license to practice chiropractic, based upon the length of time the person has been practicing in Colorado, and upon the amount of schooling he has had in preparation therefor, which preparation, for those who come in the future, includes "proving to the satisfaction of the Board that he is a graduate of a school chartered by the state in which it is located to teach chiropractic, which school requires the applicant to be in actual attendance for not less than two years of nine months each, and to take not less than 1,000 hours of instruction work in each of those years, in order to graduate." The granting of these concessions to chiropractors was done only after it became evident that no medical practice act which maintained the principle of a single board would pass without such concession, and because the constant efforts on the part of the medical profession to establish some working basis of licensure which would enable it to have supervision over all who practice the healing art, have created among legislators the feeling that the medical profession is constantly and eternally asking for some special privilege, and in so doing is giving rise to the very impression which the "faker" and the vicious lobbyist have so earnestly endeavored to create.

The argument that the medical profession is not satisfied with control of its own members, but insists on controlling the whole field of the healing art, is to the average lay mind conclusive evidence that the medical profession is guided by ulterior selfish motives; and though personally the legislator may use none but ethical and licensed physicians in his family, yet on the ground of the broad general principle of human rights he opposes all legislation which aims to control the various cults of healing by a board of medical examiners the members of which are out of sympathy with the applicant and his therapeutic measures. The argument that wins against all opposition is the old one that has always appealed to every body of American citizens, wherever and however assembled, that we are depriving these persons of a means of livelihood. The plea that public health should be conserved, at least to the extent that no man should be permitted to practice the healing art who cannot recognize the common diseases—including the contagious and infectious—and that methods and means of diagnosis do not differ among the educated, wins some adherents in the House and Senate. The balance between the adherents of these two contentions which is largely influenced by ante-election promises, personal friendships and antagonisms, trades and line-ups in the House and Senate, and numerous other causes which have absolutely no bearing on the merits of the bill under consideration, and for which there is no accounting, determines the fate of any measure destined to control licensure to practice the healing art.

Turning to a more pleasing aspect of the subject, the bill as passed provides for the licensure of midwives by examination, penalizing those who practice midwifery without a license, and defining what may be legitimately done by midwives; provides for licensure of chiropodists by examination, defining what may be legitimately done by them; defines the practice of medicine on broader general lines than have ever heretofore been laid down; gives the Board of Examiners wider discretion in refusing and revoking licenses, such discretion applying to all forms of license; provides for the recording of all persons who may do any of the things above referred to, such recording by the secretary-treasurer of the State Board of Medical Examiners to be conclusive evidence in a court of law as to the right of the individual to practice medicine in its broad sense, or in any of its limited senses; provides that no licensee may practice for an unlicensed individual, set of individuals, or corporation, except where he is employed to attend the employees of such corporation, the penalty for such offense including revocation of his license; provides that no unlicensed individual, set of individuals, or corporation, may practice medicine through a licensee, as has been done by the various medical institutes and others, so freely advertised in the local papers; and that the optometrist may use only the terms "optician or optometrist, to indicate that he is engaged in the business of refracting or fitting glasses to the human eye".

The above provisions greatly strengthen the Act in its administrative features, in which it far surpasses any law heretofore in existence in Colorado, making it of definite value in the interest of public health.

C. F. WILKIN,
Chairman of Senate Committee on Medical Affairs.

H. G. GARWOOD,
Chairman of House Committee on Medical Affairs.

W. H. SHARPLEY,
Chairman of Legislative Committee of the Colorado State Medical Society.

J. W. AMESSE,
Chairman of Legislative Committee of the Medical Society of the City and County of Denver.

CHARLES S. ELDER,
Chairman of Legislative Committee of the State Board of Medical Examiners.

DAVID A. STRICKLER,
Chairman of Legislative Committee of the Colorado Ophthalmological Society.

WAR AND PESTILENCE IN SERBIA.

Whatever the share of Serbia in responsibility for the present war in Europe, that small Balkan-state is bearing at least its due part of the horrors which that war entails. The Serbians are threatened with extermination at the hands of a greater enemy than Germany and Austria—the ravages of disease. A pamphlet issued by the Rockefeller Foundation ("Destitution and Disease in Serbia"), describing conditions in Serbia as reported by the Rockefeller War Relief Commission, carries us with vivid touches back to medievalism. With a total population of four and a half millions, Serbia's largest city numbered in peace less than half the population of Denver. The country is essentially agricultural and pastoral, and has no manufactures. The peasants make their own shoes and clothes, and after three years of warfare their reserve supplies are exhausted. If a refugee or soldier is brought dirty and lousy into a Serbian hospital, it is doubtful whether he can be furnished with clean clothes. "It is the Commission's impression that Serbia has now reached that state of exhaustion in which it has practically nothing to give away to its own unfortunates."

"At the present time, typhus, typhoid and recurrent fever are epidemic in Serbia." "Cholera is expected with the warmer weather of spring." The scattering of typhus fever through Serbia is largely attributed to the distribution in small groups throughout the country of the 60,000 prisoners captured by the Serbian army; the disease having existed in the army of invasion. The soldiers who are carried on the trains are infested with the lice which are the means of spreading typhus, and some of the insects stay in the upholstery of the cars, from which they are later picked up by civilians. At Nish the force of grave-diggers was unable to cope with the number of typhus victims; and the cemetery contained two hundred and fifty unburied bodies at the time of the Commission's visit. About two hundred and twenty-five refugees were accommodated in eleven small school rooms without beds: the hall floors and stairways were foul with human excreta and there were usually three or four deaths daily. Typhus had broken out at Uskub (Skopje) in a military school for the training of officers and non-commissioned officers. In the military hospitals alone are 11,000 patients suffering from epidemic diseases.

In normal times Serbia had not more than four hundred physicians. More than half of these are now with the army at the front or in the military hospitals. In the months of January and February sixty physicians died of typhus, and a number of Red Cross surgeons from other countries have already lost their lives from the same cause. To control the epidemic Serbia needs competent physicians, material facilities and a proper staff for cleaning the patients and keeping them clean, and means for the disinfection of blankets and other supplies.

After negotiations with the Serbian government through the American Red Cross, an American Sanitary Commission has been constituted to cope with the epidemic. At its head is Dr. Richard P. Strong, professor of tropical diseases in Harvard Medical School, who is well known for his work in aiding in the suppression of the Manchurian pneumonic plague in 1911. Among the supplies which have been sent by the Red Cross for the use of this commission are sulphur, iron pans, tons of paper for sealing buildings for fumigation, bichloride tablets, formalin, soap, bathtubs, mercurial ointment, and permanganate of potash.

HAVE YOU SENT IN THE TITLE OF YOUR PAPER FOR THE STATE MEETING?

Original Articles

MEGADUODENUM.*

R. W. CORWIN, M. D., PUEBLO.

Megaduodenum or enlarged duodenum is rare. I have been unable to find references to percentages. Dr. W. J. Mayo in a personal letter writes: "There is a type of congenital hypertrophy of the duodenum in which the duodenum is as large as or larger than the stomach, thick-walled, and reminds one of the giant colon of Hirschsprung's disease. I have seen only one example of this condition." Dr. A. J. Ochsner writes as follows: "I am very glad to hear about your case, as the condition is extremely rare, in fact so rare that I have never seen an exaggerated case, although I have seen cases in which the duodenum was twice as large as it should be." Dr. W. B. Coley replies: "I have not any special data on the abnormally enlarged duodenum and could not give you any suggestion of value in regard to treatment."

Dr. L. L. McArthur says: "Dilatation of the duodenum is a condition not often recognized. It is most frequently post-operative. Sometimes seen after gastro-enterostomy. Very serious and often fatal vomiting." Dr. J. M. Finney writes: "I have seen several cases similar to the one you describe." Dr. Bloodgood in his articles mentions 5 cases that have come under his observation.

Causes.

Professor Huntington says: "It is not a congenital deformity, unless you are dealing with the occasional diverticular formation of the intestine in this region." All practically agree that it is pathological and arises from pressure made by the mesenteric vessels on the duodenum, as they cross over it, pinching the gut between them and the spinal column, as Dr. Crile expresses it. McArthur says the same, adding, "the vessels being dragged down by inflammatory processes in lower abdomen, sometimes seen after gastroenterostomy."

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

Dr. Finney writes: "I have felt for a long time that there was a definite condition associated with dilatation of the duodenum, but what that was I have not been able to make out. I believe it is associated with disturbed pancreatic function. I have seen several cases similar to the one you describe, in none of the many ulcer or any other demonstrable pathological lesion."

Dr. Joseph C. Bloodgood, Baltimore, makes the following classification of dilated duodenum:

1. Dilatation associated with acute dilatation of the stomach—gastromesenteric ileus—which occurs as a complication with typhoid fever, pneumonia, acute inflammatory rheumatism, and more frequently as a post-operative complication.

2. Chronic dilatation, or chronic gastromesenteric ileus. "The distended cecum in the pelvis, the short mesentery of the ileum near the cecum, the demonstrable pull on the mesentery, the dilated duodenum appeared to be the essential pathologic features," in 5 cases that came under his observation.

3. Dilatation of the duodenum after resection of the stomach, with gastroenterostomy of some kind. "Some of the deaths reported as of post-operative shock, anuria or dilatation of the stomach, I am inclined to the opinion were really due to dilatation of the duodenum closed at both ends."

Symptoms.

Symptomatically, the condition appears as gastritis, with intermittent attacks of pain with nausea and vomiting; headaches; and, between attacks, indigestion, belching and constipation.

Treatment.

Bloodgood states: "The practical point that I wish to bring out and emphasize is that in the acute and chronic condition, if the patients are not relieved by gastric lavage, if observations demonstrate that little or nothing passes into the intestine, if the urine becomes scanty. i. e., when non-operative measures have failed, something should be attempted by operative interference. In the chronic cases the problem seems to be less difficult. In my experience, if on opening the abdomen the duodenal obstruction can be demonstrated to be due to a prolapsed cecum pulling on the mesentery of the small intestine, then the right half of the colon should be resected, as this operation would relieve the ptosis as well as the duodenal obstruction. If this cause—ptosis of the colon—is not obvious, the operation first performed by Stavely—duodenojejunostomy—is indicated."

In acute cases in which the cause of the duodenal obstruction is ptosis with pull on the mesentery, the patients may be too ill for resection of the colon. Then duodenojejunostomy is indicated, unless there is some other cause removable by a simple procedure, as in the first case reported here. In my second case gastroenterostomy relieved the condition.

Duodenojejunostomy is the operation most commonly recommended. Dr. W. J. Mayo, in the case mentioned in his letter says he did a duodenojejunostomy but it was not satisfactory. Dr. Finney, in a recent letter to the reader, writes: "Nothing I have seen done for them (megaduodenum) has done any good; so of late I really do nothing but close the abdomen."

Case Report.

Mrs. R., aged 29, American; born in Tennessee; married; no children. Father died young, cause unknown; mother still alive and well; one sister and brother in good health.

Patient has always been well with the exception of some stomach distress and supraorbital neuralgia. In 1913 stress was laid on the neuralgia and not the stomach condition. First consulted concerning migraine in the left supra-orbital region, April 15, 1913.

Physical examination, April, 1913; lungs and chest negative; urine negative; abdomen negative; bowel tends to constipation. Blood: Red b. c. 5,100,000; white b. c. 12,000; haemoglobin 95 per cent differential count normal. Wassermann negative. Patient nervous. No cause was found for the migraine condition except possibly from an attack of malaria which the patient had had fifteen years before.

April 12, 1914, patient re-entered the hospital, stating that the migraine was not so severe as formerly, but complaining of stomach distress. She had had frequent acute attacks in the last year. They were of the periodical type. Pain started about three hours after the meal. The patient occasionally awoke in the night and belched up sour liquid. Considerable relief was obtained from bicarbonate of soda. The belching of gas occurred about one hour after ingestion of food. Physical examination revealed the same conditions as those found the year before, except that there was slight tenderness to the right of the median line in the neighborhood of the gall bladder.

April 16, 1914. Operation: Incision made a little to the right of the median line. Abdomen explored. An extensive veil was revealed, over the intestines, stomach, appendix and other organs. The appendix was rather small, kinked upon itself retrocecal and bound down with many adhesions. Gall bladder and ducts apparently normal. Stomach enlarged. Indications at pylorus of ulcer. Pancreas seemed normal. Duodenum was very large, mistaken at first for the stomach. It was larger than the stomach, pear shaped, the greatest diameter just below the pylorus. Posterior gastroenterostomy was performed according to the no-loop Mayo method. Appendix removed. Abdomen closed.

Subsequent history: Patient recovered from operation rapidly; up on the tenth day; left for home three weeks after operation in excellent condition. After leaving train on her way home she rode several miles in a spring wagon. June 15, she reports that she has had no return of migraine or stomach trouble. August 20, she reports she has had four attacks of migraine since June 15th; some distress in the stomach, but not severe, and there was no vomiting. One can readily see that it is too soon to make a final report.

* * * * * *

February 11, 1915.—Since I read this paper the following details have been added to the history of the case: Mrs. R. returned to the hospital November 20, 1914, complaining of tenderness, weakness and some distress in the abdomen. She stated she had been riding horseback, and that on account of being far from the railroad it was difficult to secure help, hence she was obliged to work very hard. Besides preparing meals for her own family she cooked for a number of ranchmen. She remained at the hospital but a few days and then went to Texas to attend a wedding.

On December 4, 1914, she returned to the hospital unimproved. She was placed in bed and improved materially.

A month later a letter was received from her husband, reporting that she was again suffering. About the first of February a second letter from the husband stated she was doing well. This was confirmed by a letter from Mrs. R. to a friend.

Her condition seems to depend much upon the amount of exercise and work she does.

DISCUSSION.

Ora S. Fowler, Denver: I wish to report in connection with this case one which occurred last winter in the County Hospital service of Dr. Freeman and myself. A woman, who gave a history of having previously gone through a series of pelvic operations following pelvic inflammation, came back to the hospital with a history of vomiting and saying it was impossible to retain anything on the stomach. We felt at first that this might have been more or less mental, but lavage did not relieve, and all foods, all liquids, were immediately vomited upon ingestion; and we finally decided we should open and explore the upper abdomen. Upon opening the abdomen the duodenum presented, as in the case reported by Dr. Corwin. It was impossible to tell where the stomach left off and the duodenum began. Upon further investigation of the condition I found the duodenum was attached to the liver in the region of the gastro-hepatic omentum; that the duodenum itself covered over the gall-bladder and was attached to the liver to the left of the gall-bladder. The gall-bladder could not be seen, and the duodenum through its first half was more than three inches in diameter. The obstruction undoubtedly was at some point in the distal half of the duodenum, and we felt it was not advisable to investigate the retroperitoneal cavity to determine that obstruction. I did a posterior gastroenterostomy, and the patient made a satisfactory recovery. I have seen her once since, and she has been completely relieved. It is now seven months since the operation was performed.

I saw one other case in which a Treitz's hernia was at the bottom of the trouble, although not so marked as the one reported. The duodenum was less than three inches in diameter. Gastroenterostomy and closing the hernia sac for the relief of the Treitz's hernia was successful, and that patient has now been well for nearly two years. Those are the only two cases I have ever seen, and I think myself especially fortunate in having had these opportunities.

William Senger, Pueblo (closing for Dr. Corwin): There is only one point I wish to bring out, and it is that so far as I can find in the literature practically all of these cases of en-

larged duodenum were diagnosed at first as neurotics. The case reported by Dr. Corwin came to us a year ago. She was extremely neurotic, complained of supraorbital neuralgia and said nothing about the stomach. She stayed with us a few days, went back home, and then came back complaining of the stomach. The symptoms suggested an ulcer. This we found apparently had nothing to do with the enlarged duodenum, which was not suspected prior to operation.

ACUTE INTESTINAL OBSTRUCTION.*

C. E. TENNANT, M.D., F.A.C.S., DENVER.

The subject of intestinal obstruction is ever an important one. Especially is this true since, in spite of modern hospitals and surgical technique, recent statistics seem to prove that the mortality attending this particular bowel lesion is extremely high. A recent report from two clinics† gave the mortality rate at fifty per cent.

Such a death rate as this is startling to say the least, but that it can be lowered seems quite likely when the profession at large have grown to fully realize the danger of delay in this lesion.

It has been quite definitely shown that when complete obstruction of the bowel occurs, certain toxic substances at once commence forming within the lumen of the bowel. Whether this is the product of the intestinal content undergoing some destructive change because of the stasis, whether it is the product of increased bacterial activity, or whether it is a product of degenerative changes in the intestinal wall, matters little; the fact still remains that the content of an obstructed loop of gut is often fatal both to its host and to any small animal into which the material may be injected for experimental purposes.

These acute obstructions most commonly follow abdominal operations, sometimes within a few days, and again after many years. They are usually due to bands of adhesion which may form between the loops of gut, or between the bowel and parietal peritoneum, or about the folds of the mesentery. These bands may form kinks or twists, or even contract down so definitely upon the gut that its lumen may be absolutely occluded at some definite circumscribed point. Once obstruction is complete, changes occur in rapid succession.

The bowel above the obstruction gradually fills and becomes distended, the walls are overstretched, and various rotations are assumed to accommodate the loop to its new environment. This last rotary change compromises the integrity of the adjacent bowel segments and mesenteric areas, and it is at this stage that the circulatory changes become evident with their attending degenerative lesions. It is also at this stage that the question of the integrity of the gut itself comes into prominence, and is an important factor in the character of operation to be performed. For if resection is done it is at a greatly increased hazard to the patient.

As a rule several hours, and often days, elapse between the initial symptoms and the actual involvement of the vascular supply to the particular bowel area involved in the lesion. **And this period up to the time of the actual involvement of the blood supply is the only period in which operative measures can be undertaken with absolute safety to the patient,** for the mortality at this time is practically nothing. Permit a patient to go beyond this period and the hazard has been increased almost a hundred fold. Such neglect is often absolutely inexcusable on the part of the attending physician, but the time has not yet come when the profession at large will wholly agree upon this point.

The writer believes, however, that the fault does not lie entirely with the medical man in this charge of neglect; for when we as surgeons can demonstrate that there is practically no hazard to a patient in the performance of an exploratory operation, then will the surgeon see these cases earlier, and between the two a better understanding of the conditions, and a decided lowering of the frightful mortality attending these cases of intestinal obstruction, will obtain.

There are three factors which are extremely important to the successful care of bowel obstruction. The first of these is the early recognition of the lesion; the second, the immediate exploratory effort; and the third, the good judgment and originality of the operator, who devises methods whereby bowel section may be avoided, even though early circulatory and necrotic changes may have already commenced in the bowel wall. This last may be accomplished by various ingenious methods now at hand, such as the infolding of the sound gut wall about the necrotic patches; or covering these necrotic patches with grafts taken from the omentum, which the writer has found very satisfactory. These methods are, as a rule, far more safe to the patient than subjecting him to a radical resection.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

†J. Y. Brown, Surgery, Gynecology and Obstetrics, vol. 18, p. 671.

I do not wish, however, to be understood as discouraging bowel resection when, in the presence of obstruction and stasis, it becomes absolutely necessary; nor that the cases demanding such radical measures all die. As a matter of fact these cases do all die unless they are operated upon, and with operation when bowel resection is done, the mortality is and always will be high.

In the desperate cases it is often much better to simply drain the obstructed loop by entero-anastomosis, or by tubes leading out of the abdominal cavity; later relieving the obstruction when the acute stage has subsided. But when deciding upon this last course one must be absolutely certain of the vascular integrity of the bowel before leaving the loop with such temporary work.

In briefly summing up the means at hand for reducing the present high mortality attending acute bowel obstruction I believe the following four important rules should ever be observed: First, the early recognition of the lesion even at the expense of an exploratory laparotomy; second, total abstinence from all purgatives, laxatives, and fluid ingesta which may hasten the rotation of the gut and its attendant circulatory embarrassment; third, frequent stomach lavage prior to and often after the operation; fourth, ever to bear in mind that unless absolutely indicated, the penalty for bowel resection at this time is a greatly increased hazard for the patient.

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DISCUSSION.

F. N. Cochems, Salida: There are two classes of intestinal obstruction that every surgeon meets, the early and the late cases. Some say they never see the early case in their own practice. Probably that is true. My experience has been that a very large percentage of these cases have been seen by me very late. Upon a correct diagnosis of acute intestinal obstruction rests the fate of the patient very often, and it is said the diagnosis is very easy. Given a case of acute intestinal obstruction due to a loop or band or some twisting, it may be easy, but I have encountered many cases in which the diagnosis was very difficult to make, especially in those cases where we have had a large abscess. The other day we took out the appendix in a late case, and for a few days the patient did all right; but suddenly developed all the symptoms of intestinal obstruction. The question arose as to whether this was peritonitis or intestinal obstruction. My assistant said it was obstruction, and I said peritonitis due to an abscess in the pelvis. It was difficult to get all the signs. The vomiting and pain were present, but the continuous pain, with exacerbations, that we see in clean-cut cases of intestinal obstruction, was not there. The pain was more continuous, with such exacerbations as we find the result of peristalsis. That is the reason the diagnosis of obstruction was not made as being due to a kink. Drainage proved the patient did not have a loop of intestine due to a kink or a hanging loop over or near a band.

The diagnosis of acute intestinal obstruction being assumed, the question of lavage of the stomach in the early cases comes up. I think the stomach should not be washed in these early cases when the diagnosis is not absolute, and I think the usual rule which says we shall not give purgatives is wrong. In a case where there is a question between acute intestinal obstruction and impaction, where the patient is severely obstipated lavage of the stomach can be resorted to and these patients made comfortable for a while. You may lose an hour or two or more, and often it is a question whether the patient can lie upon the abdomen or not. Do not wash the stomach but give purgatives. You may do harm, but you should bring to the attention of the patient and friends the fact that you have something you may have to open the abdomen for.

In the early cases we should seek for the cause of the obstruction whether we can relieve it or not. In the late cases we should not look for the cause of the obstruction. When we have tympany, and the well-known symptoms, we should go into the abdomen at the point of election, only handle the parts slightly so as to find the loop of gut, drain it, insert a tube, pack around with iodoform gauze, establish drainage through a tube and put the patient to bed. You can do this under local anesthesia. A mistake I have made, and I think others make, is in seeking for the cause of the obstruction in the late cases and then doing a resection or plastering it over with omentum. The shock is very great; you cannot overcome the obstruction, and might as well undertake to do an enterostomy. The patient will be in a better condition, whether you have found the cause of the obstruction or not.

W. W. Grant, Denver: Whether the obstruction is due to an infective pathologic process or to an acute trauma will determine in some measure the course of the surgical procedure. Whipple, Burnham, Stone and Davis have within the last year pointed out that the greater mortality in the high obstruction is due to a toxin secreted by the mucosa of the duodenum. Eppinger and Quitman have investigated as to an internal secretion of the intestine and suggest vaccines as an aid in these cases; and Hug and Beckman, of New York, and Hartwell state that the mortality is due to the excessive waste or loss of water, and to the toxin. Practically the results are fatal unless early operation is undertaken. In the non-pathologic cases, that is those due to trauma, the earlier the operation the more satisfactory the result. The high operation and drainage are the methods of choice, but notwithstanding this a large number will die. I believe that the high operation and drainage are imperative. The sooner it is done the better, and furthermore, on account of the interference with the digestive ferments and with the nutrition of the patient, early closure of the gut is absolutely demanded.

I had a boy, operated upon six days ago, with a three-day complete obstruction, due to an accident from the handle-bar of his bicycle, in which there was no laceration of the viscera at all, but a laceration of the mesentery in the upper jejunum, producing a large amount of extravasation of blood in the peritoneal cavity, and subperitoneal hemorrhage, a slow bleeding from osmosis, mixed with serum. In such a case as this I irrigated the abdomen and did a rapid enterostomy, and the patient is doing well, with no peritonitis and no evidence of infection, but is suffering for want of proper nutrition, although nourished artificially through the rectum and by the stomach. Also, one word as to stomach lavage, which Dr. Cochems has deprecated in these cases. The vomiting and distension of the stomach absolutely determine that. If the patient is vomiting constantly or frequently, or the stomach is distended, lavage is indicated, as in the case of the little boy, every three or four hours for the first two days. The little boy is now nourished by the stomach as well. I cannot get away from the point that lavage in cases of manifest obstruction, with distension of the stomach, is not only justifiable, but imperative.

J. N. Hall, Denver: There is no more important subject that could be brought before this Society for discussion than the early diagnosis of intestinal obstruction. I think the mortality in the series of statistics which I have collected, estimated at 50 per cent, will be cut down very materially—perhaps one-half—if these cases are seen early and are operated upon promptly.

I have seen recently two cases which illustrate the importance of examining the abdomen carefully. In both instances two separate obstructions existed. In one case there were adhesions from a chronic appendicitis, with abnormal peristalsis, so that the patient had intense trouble from these adhesions. There was a resulting volvulus farther along in the colon which had to be relieved afterwards. In the other case, after relieving some of the adhesions by operation, I decided to look at the rest of the abdomen, and investigation disclosed cancer of the colon, which so obliterated the lumen of the organ that the little finger could not be passed through it. It is a great mistake to put the intestines back without extreme care being exercised to be sure that everything is open below after clearing up the first part of the trouble.

I saw a physician not a great while back who had had appendicitis forty years ago. He had an obstruction with a mass in the left side. I was much impressed with the character of the obstruction and fecal vomiting, so that it looked as though we could make a positive diagnosis of cancer of the colon. I said to the doctor, "That is what it looks like." He said, "What would you do?" I said I would never let anybody die where a diagnosis of cancer of the colon was made without having the abdomen opened. Fortunately, after opening the abdomen it was found there were a couple of bands which obstructed the colon, and it contained hard fecal matter. As soon as these bands were snipped the patient's bowels moved on the table, and he was relieved of the intestinal trouble which he had had before that.

Once in a while we see cases of sudden hyperacute obstruction which comes on, say, in ten minutes. The patient is well, but suddenly is taken ill and is in trouble. I remember a boy "skinning a cat" in a gymnasium, who had that trouble. Volvulus had occurred. A girl in jumping rope had the same thing. Both were operated on and came out nicely.

SOME AFFECTIONS OF THE EYE FROM UNDUE EXPOSURE TO LIGHT.*

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Undue exposure to light is a factor in causation of many disorders and diseases of the eye. In "daylight," besides the visible rays, there are rays in the infra-red region which present themselves in the form of heat, and others in the ultra-violet region which have well-recognized chemical powers. These extreme rays are probably not useful in producing vision. Therefore, if allowed to enter the eye, they may be deleterious in action. The eye is so constructed as to protect itself to a marked degree against their action. Some of the disorders of the ocular mechanism which are the results of exposure to solar light are undoubtedly due to their presence.

Alger states that "in snow and desert blindness, the light is broken up by reflection from crystalline snow or sand, and the actinic waves produce intense inflammation of the conjunctiva which, if long continued, results in total disability. Even in temperate climes one suffers more or less from glare and burn from direct or reflected sunlight."

Patients coming from the East frequently ask if the glare from the sun is not worse in Colorado than in lower altitudes. Miethe and Lehmann have shown that the spectrum extends as far in the ultra-violet direction in Berlin or Egypt as in Switzerland, on the Gornergrat or Monte Rosa, i. e., up to about 291 millimicrons. Parsons states that it is not a question of the quality of the rays so much as the quantity or intensity. Though some ultra-violet rays of wave-length as short as 291 millimicrons get through the thicker atmosphere of the lower levels, their intensity is greatly diminished, for there is no doubt that the rays of shorter wave-length are markedly absorbed by the denser atmosphere. The inflammatory effects on the superficial structures under experimental conditions have been shown to be due to the ultra-violet rays of shorter wave-length, from about 310 to 290 millimicrons, and to these must be attributed the similar effects of snow-blindness.

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Parsons shows that the extreme ultra-violet rays are absorbed by the cornea, and that there are rays between 400 and 295 millimicrons which escape the cornea, but are absorbed by the lens; therefore, since absorption occurs, these structures suffer from violet rays of these wave-lengths.

Vogt showed (1912) in experiments on pigs' eyes, confirmed later with five normal human eyes, that the infra-red rays must be taken into consideration, the lens absorbing 30 per cent of the heat transmitted to the cornea and iris, the vitreous absorbing twice as much as the cornea, aqueous, iris and lens together.

Schanz says that the ultra-violet rays play an active role in nature and are not used in the act of seeing, but are a pollution of the light for the eye, and are able to produce serious ocular inflammation, irritation of the skin of the face in high altitudes, and "Gletscherbrand," or snow-blindness.

Steinmetz states: "Excessive intensity is harmful to the eye. The human organism has, by evolution, by natural selection, developed a protective mechanism against the entrance of radiation of excessive power into the eye: at high intensity of illumination, the pupil of the eye contracts and thus reduces the amount of light admitted, and a sudden exposure to excessive radiation causes the eyelids to close. This protective mechanism is automatic; it is, however, responsive mainly to long waves of radiation, to the red and the yellow light, but not to the short waves of green, blue and violet light. The reason for this is apparently that all sources of excessive radiation which are found in nature, the sun and the fire, are rich in red and yellow rays, but frequently poor in rays of short wave-length; and, therefore, a response to short wave-lengths alone would not be sufficient for protection, as they might be absent in many intense radiations, while a response to long waves would be sufficient, since these are always plentiful in the intense radiations found in nature."

Fuchs says: "The disagreeable sensation of dazzling by bright light is produced solely by the visible rays of the spectrum and it is these rays that are damaging to the eye in case of affections of the retina and choroid. . . . The noxious effect of ultra-violet rays is exerted only on the external part of the eye, the skin of the lids and the conjunctiva, which are irritated by the ultra-violet rays and may become inflamed."

As Black and Vaughn state, there is no doubt that with artificial light of a given intensity, there is a greater irritation to the retinal elements than with solar light of the same intensity. There is increased centripetal impulse, with consequent greater contraction of the muscles of the protective mechanism of the eye, which after a time results in ocular fatigue and discomfort.

Fuchs says: "In my opinion the pain is produced by the strong pulling to which the nerves of the iris are subjected when, under the influence of bright light, the pupil is forcibly contracted. In the same manner the contraction of the pupil under the influence of eserin is accompanied by pain. I conclude that the contraction of the pupil causes this pain, from an experiment I made on myself, when studying snow-blindness and erythropsia. When I stepped from a dark hut out on the sunlit snow, I felt a dazzling and pain; the pain, however, did not appear when I had previously dilated my pupils with homatropin, since although the quantity of light entering the eyes was even greater, the pupil could not contract."

In Birch-Hirschfeld's cases of blinding of the eyes by sunlight, he finds the anatomical basis of the picture to be as follows: While in blinding by the ultra-violet rays there is a distinct chromatolysis and vacuolization of the ganglion cells and of the internal granular layer, in blinding by the sun's rays there is a swelling and warping of the outer segments of the rods and cones, followed very soon by a swelling and hyperchromatosis of the bodies of the rods and cones and a distinct involvement of the pigment epithelium and the choroid. As to the cause, he ascribes the chief importance to the luminous rays.

In spite of the high altitude and perpetual snow in the mountains of Colorado, we rarely are consulted in regard to serious cases of ocular discomfort from strong sunlight, reflection from snow or snow-blindness; although persons working in high altitudes, where they are much exposed to the reflection of sunlight on the snow, state that snow-blindness of a distressing type frequently occurs there.

The following case is an exception to Birch-Hirschfeld's findings in snow-blindness, where, of 34 affected cases examined by him, only 4 were of the blond type: Mr. B., English, blond, a prospector, aged 32, first seen December 15, 1902, stated that he had been out in the mountains, exposed to reflection from the snow two days without protective glasses. Both eyes showed chemosis and severe conjunctivitis. He had to be led into the office. Right eye had no light perception whatever.

Left eye showed dilated retinal vessels and hyperemia of the disk. Owing to intense photophobia of left eye, did not examine for scotoma. History of syphilis negative. Always had good vision before. He left suddenly two days later for London. Upon his return in 1908, the right eye was cataractous, with no light perception, and eye-ball somewhat shrunken. He showed me a memorandum on which a doctor in London had written the words, "Disseminated choroiditis of the right eye." Examination of left eye showed vision 20/60; with —3 sph. 20/30. The patient, living on Western Slope, reported again in 1910 and 1912, requiring upon each visit an average of —1. diopter stronger for correct vision. In February, 1914, he reported shooting pains in both eyes, the right one having shrunken considerably in the past two years. He consented to removal of same, which was done at that time. April 1st, refraction of left eye showed —5.50 sph. =20/30 vision for distance. He reports in letter of August 15, 1914, "Everything all right and left eye feels stronger."

Snow-Blindness.

The causation of snow-blindness is not definitely proved. Investigations show the disease to be analogous to sunburn of the skin, which is due to rays of short wave-lengths.

Infiltration, or ulceration of the cornea, in addition to the usual mucopurulent conjunctivitis and chemosis, is described by Gardner, Reich, Envall and Kilkowe; hyperemia of the iris by Hildige. Envall recorded seven cases, beginning with amblyopia, and Widmark noted amblyopia and night-blindness. Reich saw 73 cases in the Caucasus, and found hyperemia of the disk and dilatation of the retinal vessels. Haenel, after a ski tour without glasses, developed a relative scotoma for red, and less for green, which lasted for six weeks. Best recorded a central scotoma of 10° for red and green, with slight diminution of central visual acuity and normal fundi.

Erythropsia, or red vision, sometimes occurs after prolonged exposure to light reflection from snow, especially if the pupils are dilated; after cataract extraction, if the eyes are exposed to bright light; and after exposure to lightning, the flash of the short-circuit, etc.

Ophthalmia Electrica.

The symptoms of "ophthalmia electrica", caused by exposure of the unprotected eyes to light rich in ultra-violet rays, such as various forms of mercury vapor lamps, naked arc lamps, electric welding, the flash of a short-circuit, etc., are the same as in "snow-blindness." Among various observers, Nicola mentions erythema and edema of the lids; Phillips, punctate ulcers. Dunbar Roy noted contracted pupil; Lubinski, hyperemia of the disk and a clear spot at the macula. Fere and de Waele recorded erythropsia.

Birch-Hirschfeld reports five cases of dazzling with mercury vapor lamps, besides conjunctivitis. All showed disturbance of the color vision in some form.

In ocular discomfort, after a longer or shorter period of exposure, the eyes generally feel hot and dry, with a sense of fulness; the details of objects becoming a little blurred as if the illumination were being diminished, winking being noticeably increased. Later there is an occasional stinging pain, causing the lids to be tightly closed for a few seconds, and if the effort to use the eyes is persisted in, the finer details of objects are practically lost for an instant, and can be brought out only by closing the eyes for a few seconds; there frequently being an actual ache in the eyes and head. The eyeballs and lids usually show more or less congestion. A short rest with the eyes closed or shaded will bring about a marked sense of relief, which on resuming the occupation gives place to the same train of symptoms that now make themselves manifest much more quickly. Increasing the intensity of the illumination for a short time will seem to give relief, but it is very quickly followed by greater discomfort.

Effect of Invisible Radiation.

That this effect is not due to the ultra-violet rays is practically proved by the experiments of Parsons, Birch-Hirschfeld, Behr, Fuchs, Schanz and Stockhausen. The cornea and lens absorb practically all the rays of less than 400 millimicrons wave-length. Steinmetz says: "The radiation of the sun contains a larger percentage of ultra-violet compared with the total radiation than any glass-enclosed artificial illuminant, and as the light of the sun—that is, daylight—is recognized as perfectly harmless as far as the specific destructive action is concerned, the same applies to the artificial illuminants, as they contain less ultra-violet rays than the light of the sun."

Louis Bell states that it is only by virtue of the high maximum point in the luminosity curve of the eye that we are able to see distinctly at all, and that if the extremes of the spectrum were highly luminous there would be no definite focal surface for which accommodation could be adjusted, the violet rays being brought to a focus in front of the retina and the red rays being behind it in the emmetropic eye. It is a well-known fact that the luminosity curve of the eye varies with the intensity of light, shifting toward the green with illumination of low intensity and toward the orange and red with illumination of high intensity.

Sir William Crookes, in a paper read before the Royal Society in November, 1913, stated that after four years' experimentation, he had succeeded in preparing glasses which cut off more than 90 per cent of heat radiation, and glasses which were opaque to the invisible ultra-violet rays, and were sufficiently free from color to be capable of use as spectacles; but that he had not been able to combine in one specimen of glass these three desiderata in the highest degree; and that the ideal glass which would transmit all the colors of the spectrum, cutting off the invisible rays at each end, was still to be discovered.

Schanz states that an assistant in the Charité Eye Clinic, who went to an altitude of over 8,000 meters in a balloon, used on that occasion yellow colored glasses, while his companion used ordinary smoked glasses. He remained free from disturbances which we classify as snow-blindness, while his companion became afflicted in the typical way. The ideal protection would be a glass capable of transmitting sufficient light throughout the spectrum, but reducing the intensity of the red and eliminating the ultra-violet; and which could be used by people exposed to strong sunlight, glare from the water, reflection from snow, etc.

Luckiesh found by experiment that the maximum of visual efficiency at the reading distance was had from light corresponding to the yellow-green of the spectrum. A glass of such a tint caused the least focal distortion and at the same time furnished the greatest amount of illumination.

Dr. N. M. Black, of Milwaukee, in a paper read by invitation in Denver in August last, upon the subject of "Illumination", described and demonstrated a new glass which is at present being marketed under the name of "Noviol"; concerning which experimentation has shown that the deepest shade, besides eliminating the ultra-violet, violet and most of the blue, also absorbs 60 to 65 per cent of the infra-red rays, but reduces the intensity of illumination only 15 per cent. This, it would seem, is a very close approach to the "ideal glass" referred to by Sir William Crookes as still to be discovered.

At the seventeenth session of the International Medical Congress, in London, August, 1913, there were a number of interesting communications relating to the subject under discussion. The chief points brought out are as follows:

Colonel Elliot advises that, previous to a solar eclipse, a notice should be put into the papers warning people not to look at the sun without protecting glasses; damage being frequently caused in India from ignorance of this fact.

N. Bishop Harman calls attention to the great change which has taken place in recent years in the general science of illumination. Unprotected arc-lamps, metal filament lamps, and high-pressure gas cause great retinal and cerebral fatigue. It matters little how intensely an object which is being examined is illuminated, but it is most detrimental for the intense glare from a highly luminous point to strike the unprotected eye.

Edridge-Green gives a full explanation of erythropsia based on his theory of vision as a photo-chemical condition. He thinks red a most irritating color, and it is for this reason that some totally color-blind people are able to become aware of it.

J. Herbert Parsons remarks that photophthalmia, one form of which has been called snow-blindness, is caused by undue exposure to sunlight, but that it can also be produced by the electric arc rays. Many cases of eclipse blindness following the act of gazing at the sun with the naked eye have been seen, and there are always a number of them after every solar eclipse. Many of these cases show retinitis, and a scotoma which is not always recovered from.

Carl von Hess states that ordinary daylight has no discernible evil influence on the eyes, either healthy or diseased. Prolonged exposure to sunlight, on the other hand, brings about conditions well known to occur during the watching of a solar eclipse, and also in the condition known as snow-blindness. These injuries can be prevented by suitable protective glasses. The fear that injury to the eyes is caused by modern sources of illumination, he believes groundless to a large extent. Discomfort from this source can always be prevented by suitable shading of the lamp. Glasses for such a purpose are unnecessary except in the case of men who are working for hours together in artificial light rich in ultra-violet rays.

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DISCUSSION.

G. Libby, Denver: Dr. Hess has kindly asked me to discuss his paper. In the first place, it may be permissible for me to say that the address to which we have just listened with interest and profit represents a large amount of reading and correspondence, covering a year's time.

I was impressed by Steinmetz's observation that the automatic protective mechanism of pupil-contraction, and even lid-closure, is responsive mainly to the long wave lengths of the red, as in firelight, and the yellow of the sunlight, rather than to the short wave lengths of green, blue and violet. The eye thus takes care of the predominating rays of light in nature which annoy or injure the eye.

Equally interesting is Fuchs' statement that the visible rays of the spectrum cause "dazzling" and damage to the retina and choroid; while the invisible, or ultra-violet, rays affect the anterior, external segment of the eye and the skin. Personal experiments, with and without cycloplegia, led Fuchs to believe that the ocular pain experienced in going from a dark house to a sunlit snow field was due to a strong pulling of the fibers and nerves of the iris in forcibly contracting the pupils.

Birch-Hirschfeld noted only four blonds in thirty-four patients affected with snow blindness. This is contrary to the interesting speculations of Woodruff, Sisson and others as to the effect of excessive light on the eyes and other structures of persons of the blond type.

In the case reported by Dr. Hess from his own practice, disseminated choroiditis, cataract and phthisis bulbi, in order, seem to have been secondary to snow blindness, in the eye that came to enucleation. The progressive myopia of the fellow eye may have been due to other causes than exposure to excessive light.

For the following data on tinted lenses I am largely indebted to E. E. Shreiner's article in "The Optical Leader" for November, 1913:

Green—In 1561 Jarius Ancott of England announced "the construction and making of spectacles with green glass which I conceive are of great public utility and benefit." This is thought to be the first use of colored glass for protection of the eyes from excess of light.

Blue—Lenses are known to have been made of blue glass in 1672, which color supplanted green in public favor in England.

Smoke, or as it was then called, "gray" glass, was advertised in 1767 by a London optician. The first known instance of colored lenses being offered for sale in America was in 1839, when James Peters of Philadelphia advertised "white, blue, green and gray glasses to suit all eyes."

Amber—In 1832 a royal patent was granted to George and Elias Solomons of Stepney, England, giving them the sole right to make and sell amber lenses.

Arundel—About 1872 T. A. Willson and Company of Reading, Penn., made and sold "Arundel" lenses, which were of a pink color.

Electric—Charles Chevalier, the French optician, advocated in 1873 a lens of dense color, composed of a plate each of dark blue and dark smoke glass.

Chlorophyle—In 1880 Fieuzal of Paris undertook to make a glass that would absorb ultra-violet rays. He died before the problem was solved, but his pupil, Leon Fargier, completed the task. This yellowish-green glass bears Fieuzal's name.

Amethyst—About 1885 William Thompson suggested the use of amethyst lenses in asthenopia. The raw material was found in old window panes. This glass was originally "white", but had turned to a beautiful violet tint from long exposure to sunlight.

Uranium—A yellow glass of strong fluorescent cast, was put on the market in 1900. It has a limited use.

Hallauer of Switzerland invented a smoky green glass, in 1905, which bears his name. By some authorities it is considered superior to the yellow-green chlorophyle. The following year the Germans produced a very similar glass which they styled "enixanthos", and which is described as "yellow smoky glass."

Euphos, the celebrated greenish-yellow glass of Schanz and Stockhausen, appeared in 1907. Formerly made in six shades, it now is furnished in three, although the German government recognizes but two standard shades of euphos glass. Its makers claim that less than 5 per cent of the visible rays are excluded by the glass, and that its composition rather than its tint is the factor in cutting out ultra-violet rays.

Roentgen invented a glass in 1908, to which his name is applied, and which acts as a protection against X-rays because of the lead it contains. When 30 per cent of lead is incorporated a clear, colorless glass is produced, but when 60 per cent of lead is used the resulting color is smoky gray. In this connection it is interesting to note that flexible lead gloves are now worn by some X-rayists.

Didymum, a glass first manufactured in 1909, has a peculiar salmon pink reflection, although at first glance it seems to be slate color. Its name and color are derived from the salts of didymum. m

Erbium and **Yttrium**, first put on the market in 1910, are each an almost colorless glass derived from the metal of the same name.

Many other tints there are, with various trade names, and doubtless there are more to follow. The euphos and Fieuzal glasses, which opticians say are indistinguishable, have largely supplanted all previous makes of tinted glass, and give general satisfaction to their wearers in modifying the excess of natural or artificial light to which the eye is at times exposed.

The new American tinted glass, **noviol**, or "noglare," may, however, be expected to supplant the German and French products on which we have mainly depended. This would seem necessary, in view of the great European war now raging, and would be desirable at all times.

Melville Black, Denver: I think we are growing more and more used to prescribing some kind of glass which tends to cut out the ultra-violet rays of light, and it is so easy to get a patient to a point where he is dependent upon the relief that such a colored glass gives that I think it might be well to say something in the nature of a warning against a too wide practice of prescribing colored lenses.

In the first place, I believe that in a vast majority of cases the use of colored lenses before the eye is unnecessary. On the other hand, I think we must of necessity recognize that in a small percentage of cases the use of a colored glass is not only necessary but advisable; therefore I would not be an extremist either way but I would simply assert that I think it is very easy for us to get in the habit of prescribing colored glasses and allowing people to become too dependent on colored glasses. They will go to their opticians for the refilling of the prescription, and while you may have prescribed the first number of euphos or amber, or whatever it may be, in a year or so they will come back wearing a stronger tint. I think it is proper to tell them that these tints are only given for temporary purposes or certain work, such as driving an automobile; and to caution them against having the prescription refilled with stronger and stronger shades of the tint prescribed.

W. H. Crisp, Denver: There are conditions in which tinted glasses are distinctly desirable, as, for instance, in traveling a considerable distance over bright snow or in the mountains, or over glaciers. But to most of us the problem presents itself from the point of view of the patient who most of the time lives in the city, spends a good part of his time indoors, and for an hour or two daily is out of doors and walking on the streets, where he thinks his eyes suffer from the bright light.

There is one thing we should bear in mind before prescribing tinted glasses indiscriminately, and that is that an eye which is strained in any other way is very much more sensitive to bright light than an eye which is relieved of all possible strain in every other direction. In other words, we must be sure that we are not covering up carelessness in refraction by giving the patient a colored glass. If the patient's refractive correction is absolutely correct and the general health is satisfactory, strong outdoor or indoor light is not likely to prove a serious cause of inconvenience.

W. L. Hess (Closing): I will state that I don't make a general practice of prescribing these tinted lenses, but use them only in extreme cases of exposure to bright light, in snow blindness and in certain cases of extreme sensitiveness to light.

THE COLLOIDAL THEORY OF THE PATHOLOGY OF GLAUCOMA.*

JOHN ALEXANDER McCAW, A.B., M.D., OPH.D. (Colo.), DENVER.

The problem which the author set for himself was to test by experiment the colloidal theory of glaucoma as advanced by Martin Fischer. Fischer claims to have demonstrated that glaucoma is caused by chemical changes in the circulating fluids in the eye. These chemical changes increase the affinity of the tissues for water. The eye swells by absorbing the water brought into it by the circulating fluids. Glaucoma is therefore (according to Fischer) an edema of the eye.

Variations in the amount of water held by cells and tissues occur in a great variety of animals and plants. Under a variety of circumstances single cells may be made to absorb enough water to burst. These are true edemas. We shall see by reports of experiments that eyes immersed in dilute acids, become as hard as stone and burst their sclerotic coats in from six to seven hours.

The cause of edema lies in the tissues.

Fischer ligated the leg of a frog just above the knee so tightly as to shut off both arterial and venous flow. The animal was then placed in sufficient water to cover the legs. The ligated leg developed an intense edema, while the unligated one remained normal. This result cannot be explained by any circulating fluids because there are none. It proves that circulating fluids, as blood and lymph, had nothing to do with the edema. He ligated a frog's leg above the knee joint where it is free from musculature and put it into a dry bowl. The leg below the ligature gradually dried up and withered until only the bones were left. Also he ligated a frog's leg above the knee and then amputated it. The skin was pulled up over the end and tied tightly and put into a bowl containing water. The leg developed an intense edema. These three experiments with frogs' legs seem to demonstrate that the pressure of circulating blood and lymph can not account for the great swelling.

Fischer seeks an explanation for the changes that take place in the tissues in edema, in the affinity of the colloids of the tissues for water. He discusses the properties of the colloids in their behavior towards water. Fifty years ago Graham recognized that different chemical substances vary in the rate at which they diffuse through solvents of different kinds. On the basis of this observation he made a distinction between those which diffuse only slowly and those which diffuse rapidly. The former, amorphous mostly, he called colloids. The group that diffuse rapidly he called crystalloids, as cane sugar, salt, etc. Crystalloids make true solutions. Colloids do not; they remain suspended in the solvent.

Perrin distinguishes between those colloids which in the solid state are rich in water and those which are poor. The former he called hydrophilic colloids and the latter hydrophobic colloids. Fischer states that when we recall that hydrophilic colloids, such as gelatin, fibrin, dextrin, starch, glue, vegetable fibre, albumens, and gums are for the most part derived from biological sources, their importance to the living animal or vegetable must be suspected. Not only is the chief mass of the living organism built up of colloidal material, but most of this belongs to the hydrophilic group.

Observations on the swelling of fibrin.—Ordinary blood fibrin was used in these experiments. After being thoroughly washed free from salts the fibrin was dried at a low temperature and pulverized in a mortar. When a weighed amount of this fibrin (0.25 gram) is introduced into a definite volume (25 cc.) of various solutions contained in test tubes of the same diameter, the fibrin swells to various heights. For our purpose we will refer to but two of the results: (a) Fibrin swells more in the solution of any acid than it does in distilled water, but when equinormal acids are compared, the amount of swelling is greater in some acids than in others. Fibrin swells more in hydrochloric acid than in nitric acid, and more in nitric than in acetic acid. The amount that fibrin swells in the solution of any given acid is dependent upon the concentration of the acid. (b) The addition of any salt to an acid solution decreases the extent to which fibrin will swell in that solution. The higher the concentration of the added salt the less does the fibrin swell. If enough is added the effect of the acid may be entirely suppressed.

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*Thesis for the degree "Doctor of Ophthalmology," University of Colorado.

Observations on the behavior of gelatin in acid solutions, and in acid solutions with added salts, show that in the main the same results are obtained as are found for fibrin. The absorption of water by the eyeball is entirely analogous to the absorption of water by fibrin and by gelatin.

Observations on the absorption of water by sheep's eyes.—Glass bowls with covers were used. Each bowl contained 220 cc. of the solutions. The acid solutions were made by adding 2, 4, 6, 8, 12, 14 or 16 cc. of one-tenth normal solutions of hydrochloric, nitric and acetic acids to distilled water sufficient to make 220 cc. of solution. Fresh sheep's eyes were used. All muscles and tags of fat were removed and the eyes were weighed on Trommer's scales. They were put into the solutions and weighed every five to six hours for thirty hours. One eye was weighed and put into distilled water for purposes of comparison.

The eyes in hydrochloric, nitric and acetic acid solutions absorbed enormous amounts of water, as indicated by their increase in weight. The eyes in hydrochloric and nitric acid solutions of the strength of 7/110 normal and 8/110 normal acid, ruptured the sclerotic coats. The rupture was at the equator of the eyeball, about ¼-inch back of the muscle insertions. They did not rupture around the region of the cornea.

It was also noticed that the acid solutions gave a steamy appearance to the cornea. This appearance increased with the concentration of the acids. The opacity of the cornea was greater in the nitric acid solutions than in those of hydrochloric or acetic acid. The vitreous extruded through the ruptured sclerotic had the appearance of cooked white of egg.

The experiments performed lead to the conclusion that the cause of the edema lies in the tissues; but what changes do the tissues suffer in order to get into this pathological state? A state of edema is induced whenever in the presence of an adequate supply of water the affinity of the colloids of the tissues for water is increased above the normal. The accumulation of acids within the tissues, brought about either through their abnormal production or through inadequate removal of such as are normally produced in the tissues, is chiefly responsible for this increase in the affinity of the colloids for water. But the possibility of explaining at least some of the increased affinity for water as due to the production or accumulation of substances which affect the colloids in a way similar to acids; or to the conversion of colloids having but little affinity for water into such as have a greater affinity for water, must also be borne in mind.

An abnormal production or accumulation of acids, or conditions predisposing thereto, exist in all states in which we encounter the development of edema.

Fischer points out that states of edema are prone to develop in conjunction with circulatory disturbances. We shall have no difficulty in interpreting the variations in the severity of a local or general edema due to circulatory disturbance, if we say that every condition that makes for a lack of oxygen in the edematous parts (be this through disturbances in the affected parts themselves, or in some distant organ, such as the heart), makes for an increase in the severity of the edema. Is lack of oxygen always accompanied by an abnormal production or accumulation of acids? For as already stated this is what we need to know, and we do know from our previous experiments that abnormal production or accumulation of acids is the most potent factor in increasing the affinity of the tissue colloids for water.

To answer this question we will introduce the experimental findings of Trasaburo Araki. This author has shown that in the presence of a lack of oxygen, no matter how produced, dogs, rabbits and frogs excrete lactic acid in their urine in addition to various other abnormal substances. He found lactic acid in the urine voided by epileptics shortly after their seizures. E. Mendel found that the phosphoric acid content of the urine was increased immediately after epileptic seizures and in apoplexy. Hoppe-Seyler's analysis of various edema fluids showed them to contain besides lactic acid, valerianic, succinic and butyric acids.

The lactic acid found in conditions associated with a lack of oxygen is produced in the tissues, enters the blood and is excreted by the kidneys. This has been proved by the experiments of Araki and those of Hermann Zillessen. Zillessen found that when the supply of oxygen to the liver is shut off for a number of hours through the ligation of the hepatic artery, an increased production of lactic acid occurs. If the ligature is removed and the first blood returning from this organ is analyzed, it is found to be particularly rich in lactic acid. Any interference with the normal oxygen-carrying power of the blood may therefore be expected to induce a state of lack of oxygen in the tissues. Hoppe-Seyler was able to obtain lactic acid from the urine in two severe cases of anemia. Von Jaksch found the blood to show a distinctly diminished power of neutralizing acids in pernicious anemia, leukemia, and chlorosis. This decrease means that an abnormal production of acids has occurred in the tissues.

Pathologically considered, glaucoma is a local edema, or an edema of a special organ. Clinically considered, all the symptoms of this disease are referable to the increase of intraocular pressure induced by the large amount of water held by the eye.

Priestley Smith and other ophthalmologists have explained the increased tension on purely mechanical and nervous grounds. The blood pressure in the afferent vessels of the eye is raised, while the drainage of the eye is obstructed by the closure of the filtration angle of the anterior chamber, causing more fluid to enter the eye than can leave it, and thus raising the pressure. Priestley Smith, after stating a number of predisposing and contributing causes of glaucoma, says we may reckon among the predisposing causes of glaucoma, various morbid conditions of the system and probably certain latent morbid changes in the eye itself.

The experiments performed and here recorded by the writer show very clearly that an intense glaucoma can be induced without any circulation whatever. Also there may be an increase of pressure in the circulating fluids of the eye without any symptom of glaucoma. This leads to the conclusion that the cause of glaucoma may well reside in the tissues of the eye and that it becomes glaucomatous not because there is more fluid pressed into it but because, through changes in itself, it absorbs more water. That the amount of such absorption is sufficient to explain the severest grades of glaucoma ever observed clinically is evidenced by the fact that through the addition of a little acid a sheep eye can be made to absorb enough water to rupture the sclerotic.

The experiments here related further show that this increased absorption of water is dependent upon the colloids in the eye, for not only is the eye built up of a series of different colloids, but the same conditions that govern the absorption of water by fibrin also govern the absorption of water by the eye. Also on the ground of these experiments we infer that the eye becomes glaucomatous through chemical changes within the eye itself which increase the affinity of the ocular colloids for water, so that these are enabled to absorb water from any source available.

Just what the chemical changes in the eye are in clinical cases of glaucoma, no one is able to state definitely. We may infer that the cause of this edema is the same in essentials as that of more generalized forms of edema. In a large number of glaucoma cases circulatory disturbances in the eye which permit of an accumulation of carbon dioxide and the abnormal development of such acids as are a constant accompaniment of lack of oxygen, are unquestionably present. The best evidence of this colloidal theory of glaucoma is furnished by clinical observations as to the relief of glaucoma by sub-conjunctival injections of sodium citrate.

The experiments performed on enucleated sheep's eyes and described above, not only show how acute glaucoma may be produced in an eye, but suggest how the development of such a glaucoma can be prevented, or how when once established it may be caused to subside. Because of the danger to the sight in acute glaucoma, it is a matter of great importance to be able to combat this disease.

From the experiments described we have learned that the presence of any salt in an acid solution decreases the extent to which an eye will swell. Some salts have tended to produce corneal opacities, while others not only inhibit absorption but actually decrease the opacities. The use of these salts tends to decrease the steaminess of the cornea which is always present in acute glaucoma. The salts referred to are the citrate, tartrate, sulphate and phosphate of sodium and potassium. After a number of tests Fischer chose sodium citrate as the salt best suited for use in clinical cases of glaucoma.

The concentration of the salts varies from 1/8 to 1/6 molecular (4.05 to 5.41 per cent) solution. The injections are made with a fine-needled syringe under the conjunctiva, the amount varying from 5 to 15 minims. In the severer cases of glaucoma the stronger sodium citrate solution is to be used, in the milder cases or for subsequent injections the 1/8 molecular solution is sufficient .

Fischer sums up his results in ten cases as follows:

The use of subconjunctival injections of 1/8 to 1/6 molecular solution of chemically pure sodium citrate in clinical cases of glaucoma is entirely harmless and is always followed by a fall in ocular tension. The effect of such an injection lasts from three to six days and is accompanied by relief of all subjective symptoms of glaucoma except the loss of vision.

Fischer wishes it clearly understood that when sodium citrate injections reduce tension in glaucomatous eyes this does not constitute a cure for glaucoma. A cure of glaucoma would have to include removal of the conditions which are responsible for production of the substances that increase the affinity of colloids for water. If these are acids, the product of a circulatory disturbance or of an infection, then the real cure for glaucoma resides in correction of the circulation to the eye or in removal of the infection. Sodium citrate injections would help this. In the progressive development of a glaucoma the swelling of the colloids compresses the blood vessels entering and passing out of the eye.

Obliteration of the filtration angle is a consequence of glaucoma, since in eyes in which glaucoma was artificially produced, the anterior chamber grew progressively shallower. This is explained by unequal swelling of the different colloids of the eye, those posterior to the lens being capable of greater swelling than those anterior to it. Through this unevenness of swelling the ciliary body is crowded against the sclera and presses on the blood vessels.

428 Majestic Building.

CONGENITAL CYSTS OF THE NECK.*

WILLIAM SENGER, M.D.,
PUEBLO.

Congenital cysts of the neck are malformations dependent upon nature's shortcomings or over-enthusiasm.

In order to understand such errors a few moments' review of the embryology of the neck may not prove amiss.

Neck structures anterior to the vertebrae develop from the branchial clefts and arches. The clefts correspond to similar structures in fishes, through whose clefts water, when taken into the mouth, passes to the exterior, bathing the gills which are attached to the branchial arches. In the normal human embryo, however, these are never clefts, but merely grooves. In later development the grooves disappear or are converted into special structures. There are five arches and four clefts. The first arch forms the mandible. The first cleft persists to form the auditory meatus, middle ear and Eustachian tube. The lower part of the second cleft forms the fossa in which rests the tonsil. The third and fourth arches enter into the formation of the sinus praecervicalis. The lower part of the third cleft forms the sinus pyriformis of the larynx.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

Corresponding to each groove in the ectoderm there is also one in the subjacent endoderm. The ectoderm and endoderm are close together, being separated only by a very thin layer of mesoderm.

Now, if this membrane (consisting of the before-mentioned three layers) should become perforated or should revert to the "fish type" and become cleft, an opening from the pharynx to the exterior would result. Such a fistula is lined with mucous membrane and is usually a cleft through the second branchial groove at about the position of the tonsillar fossa. Furthermore, should the external opening be obliterated, with the internal opening patent, a pharyngeal or oesophageal diverticulum exists. Finally, if both external and internal openings become obliterated, the epithelial lining may proliferate and form a closed branchial cyst. Such cysts, if derived from the external branchial grooves, are dermoid in character and their contents resemble those of a sebaceous cyst. Should their origin be from the internal grooves they are usually lined with columnar epithelium, sometimes ciliated, and contain mucus.

Another group of congenital cysts have their origin in development of the branchial epithelial bodies which are the origin of the thyroid, thymus, parathyroid and possibly the carotid glands.

The thyroid develops as a downgrowth of epithelium from the floor of the pharynx. The pyramidal process of the thyroid represents either a secondary growth upward from the isthmus, or, more usually, is a remnant of the original downgrowth from the pharynx—the thyreoglossal duct. In this passage downward a part may fail to leave the pharynx and a lingual thyroid results; or an isolated portion may give rise to an accessory thyroid; or, being scattered along the thyreoglossal duct, may persist as an enlarged pyramidal lobe. Finally, should the pharyngeal mucosa be drawn down in the descent of the thyroid, a patent thyreoglossal duct is formed, which often dilates into a cyst. An interesting condition is such a patent thyreoglossal duct, for in some adult lower animals the duct is normally patent and empties directly into the genital tract.

The two lateral thyroid bodies have caused considerable confusion. At present it is believed that although these bodies degenerate in the lower vertebrates, they may in man unite with the central thyroid and functionate to some extent. Possibly some of the unclassified cysts of the neck have their origin from degeneration of these lateral bodies.

There is perhaps no gland of the body so prone to cyst formation as is the thyroid, some of the cysts originating in the fetal "rest tumors," others becoming manifest long after birth.

The thymus gland sinking down from the third branchial groove may carry with it those elements which later develop a dermoid of the anterior mediastinum. In passing, it is interesting to note that the expression "persistent thymus" means nothing, as remnants of the thymus are commonly observed in old age. Further, Becker claims that most primary tumors of the anterior mediastinum have their origin in the thymus. Too little is known as to the frequency with which such tumors are congenital.

The third great group of congenital cysts, known as lymphatic cysts or hydrocele of the neck, consist of dilated lymph spaces. Such anomalies occur normally in frogs and allied animals. They are usually multilocular and thin-walled and therefore spread easily in all directions among important structures of the neck.

The congenital cysts of the neck, then, are developmental errors—branchiogenetic, branchial epithelial or lymphatic in origin.

The symptoms are easy of interpretation. If the cyst has an external opening, the passage is easily demonstrable by injecting with bismuth paste, or, as we have done at Minnequa Hospital, with collargol, and then locating with the X-ray.

In case there be a cyst with only an internal fistulous tract, the symptoms are those of a more or less pronounced diverticulum of the esophagus or pharynx with the dysphagia, regurgitation, and a sac demonstrable by the bougie or the X-ray. Should this cyst, however, open into the trachea, its distention and collapse during respiration mark its origin.

Closed cysts may give rise to pressure or deformity. It is often impossible to judge what type of cyst is present, for any of them may undergo numerous changes, depending on the extent of mucous or fatty degeneration; on the amount of traumatism, surgical or otherwise they may have received; or on the secondary changes so frequently present, such as suppuration or, in later life, carcinoma. The latter change is extremely frequent.

There is not time to discuss cysts resulting from errors in the development of the branchial epithelial bodies (the thyroid, thymus, parathyroid and carotid glands). These are conveniently considered as diseases of the organs named. Nor shall I touch upon the treatment of esophageal and pharyngeal diverticula.

There is as a rule but little danger of diagnostic error in considering these cysts. Confusion ought not to arise as between them and a mass of enlarged lymph nodes or the more common new growths. That rare disease, subhyoid bursitis with suppuration and external rupture, may give rise to much difficulty in differentiation. However, the diagnosis here is academic rather than practical, as both conditions demand surgery. The diagnosis must often hinge upon the microscopic findings. Occasionally, cysts of a patent thyroglossal duct above the hyoid bone may closely resemble submental ranula.

The mere fact that the treatment advised varies much, speaks for the difficulties encountered. Important structures are pushed far from their normal relations; a mucous lining is often encountered and must be completely destroyed to effect a cure.

The ideal treatment for a closed cyst is the same as elsewhere in the body—excision. Unfortunately, this is frequently too difficult and dangerous. Under no circumstances should a radical operation be attempted in a child of less than 2 years of age. In case the symptoms become threatening or the parents too insistent, simple aspiration followed by the injection of weak tincture of iodine solution will give temporary relief and occasionally a permanent cure.

It must be borne in mind, however, that, whenever any such material is injected and the cyst persists, radical treatment becomes so much the more difficult because of scar tissue further confusing the already too distorted landmarks.

My own method has been to extirpate the whole cyst when possible. Should difficulties prove too great, remove as much as is consistent with safety; attach the remaining sac wall to the skin (i. e., marsupialize); evacuate all contents thoroughly; paint the cavity with tincture of iodine, half strength, and allow to granulate from the bottom. The results are excellent by this method, but unfortunately a bad scar may result.

Cervical fistulae associated with cysts must be excised when possible. They are a constant menace. No insurance company will accept an applicant with such a condition. Locate as far as possible with the X-ray. Make free incisions, for at best the operation is extremely difficult. When the pharyngeal end of the fistula is reached it is best treated by König's method, i. e., instead of attempting to destroy this portion of the tract, the end of the fistula is pulled into the mouth and sutured to a freshly made puncture in the mucous membrane. The remainder of the tract is cut away.

Patent thyroglossal duct needs special mention because of its relation to the hyoid. Sometimes it becomes necessary to resect a part of this bone in order fully to destroy the cyst wall. While cervical cysts, aside from those formed from the branchial epithelial bodies, are fortunately rare, nevertheless they are always of importance, and sooner or later demand surgical interference on account of the mischief which they do or may inflict. Too often are these cases rendered surgically hopeless by well-intentioned but unfortunate conservative methods. We must bear in mind that these deformities demand, from the beginning, treatment at the hands of one thoroughly acquainted with every side of the subject, and even then the patient must be prepared for possible failure after repeated operations.

DISCUSSION.

Oscar M. Shere, Denver: This is a most interesting subject which Dr. Senger has presented to us this morning. It represents a study which has merited the attention of surgeons as well as embryologists within the past two decades. Although branchiogenic cysts were known to the profession for years and years, the true significance of such cysts was not so well understood until the embryologic origin or the relation of these cysts to embryology was so beautifully studied by Volkmann, His, and others. Recently Wenglowsky has made a wonderful study of the subject, and the literature abounds in facts which explain the character of the segments that are found in the embryo and of the remains of the various ducts from the thyroid as well as the thymus which in later life produce these cysts and fistulae.

What I would like to accentuate in the paper of Dr. Senger is the point that these cysts or fistulae, when left alone, are very prone to carcinomatous degeneration. A study made at the Royal Victoria Hospital shows that the carcinomata found, without other known cause, either in the tonsils or in any other part about the neck are probably the direct outgrowths of these various cysts. Regarded in this way, the subject assumes greater interest as well as greater importance for the surgeon as well as the medical man, since these cysts and fistulae should be removed before they have degenerated into carcinomata. The statement has actually been made that all primary carcinomata of the neck are to be traced directly to some remnant of these various cysts and fistulae.

I should like to pass around a photograph of a case that came under my care within the past six months, of a man 42 years of age, with a carcinoma of the neck, probably inoperable, involving the jaw and all structure about the neck, who gave a history of having had a small fistulous tract as far back as he could remember, probably from birth. Beneath this photograph is a sketch showing four clefts as they appear on the neck. Comparison with the photograph shows the direct relationship between the fistula and the carcinoma which has supervened upon it. The prognosis of these carcinomata, when they do occur, is very grave, the mortality being about 100 per cent.

With reference to the treatment of these cysts, it is true that surgery is the only rational procedure, but it cannot always be carried out successfully. In some cases the cysts or fistulae cannot be dissected out thoroughly, and in consequence we are occasionally compelled to use nonsurgical methods. One is the method of König, who injects a solution of silver nitrate, in that way hoping to abolish the tract as well as the source of supply. Another method is that of Lichtwitz, who employs electrolysis with various chemicals. A third is the injection of carbolic acid and alcohol, or tincture of iodine.

G. H. Cattermole, Boulder. I have an interesting case to report in connection with this subject: The patient was an infant with a large congenital cyst of the neck extending down laterally, and at first supposed to be due to a defect in the base of the skull with probably a cerebral hernia, but as it grew larger we attempted aspiration of the mass and found it to be a multiple cyst. By putting the needle into different localities we got different colored fluids.

As to treatment, we tried injections of iodine solution. At the age of about six months the child died with a hyperpyrexia, the temperature running very high, with symptoms of pressure on the larynx and very difficult breathing.

At autopsy the cysts we had injected showed a brown, semi-fluid substance, and the attempt seemed to have been successful in that these cysts had not become larger again. The fluid had not accumulated in them, but there were a great many of the cysts, and the growth extended down below the clavicle in the neck and under the platysma and sternomastoid toward the back and was very extensive. On account of the pressure and dyspnea an attempt was made to lance the swelling in the back of the throat, but without effect. That portion of the growth proved to be almost solid tissue, and how much real pressure there was we could not determine. It seemed to be more in the nature of a toxemia from accumulation in the cysts.

W. W. Grant, Denver: I wish to speak for a moment or two on the surgical treatment of these congenital cysts. I have had two cases in the last few years, one in a child, a girl of five or six years of age, and the other in a young man of eighteen. Curiously, both of these opened through the cricothyroidean space. I removed the cyst in both cases and kept a tent in the opening in the cricothyroidean space, and they did not recover. Finally, by repeated operations of this kind, and injecting the cyst beneath this space with iodin and draining by tent, they finally recovered. These cases are very persistent because we do not usually get at the absolute origin of the cysts. It seems impossible surgically to do much in many of the cases. They will not be cured by simple enucleation but require drainage and usually caustic or antiseptic applications.

William Senger (closing): The case reported by Dr. Cattermole suggests one of the so-called lymphatic cysts—a reversion in type, found normally in the frog. These cysts are usually thin-walled; multilocular; with varied contents—one saccule containing bloody fluid, while next to it may be one filled with clear fluid, and in a third you may find thick mucus. Here lies the difficulty in attempting to aspirate them. You may clog the needle with thick mucus in the first puncture. It is necessary to break through all the trabeculae to bring about a cure. Blindly aspirating rarely does this. On the other hand, radical operation is difficult and dangerous, There are cases on record, of lymphatic cysts which have disappeared spontaneously. Marsupialization, however, seems to be the preferred operation, after removing so much as is consistent with safety.

Dr. Grant referred to the persistency with which cysts with fistulae recur. This is unfortunately too true and is due to the fact that the mucous membrane which so frequently lines these cysts as well as the fistulae is not completely dedestroyed. We all know that if we do not remove completely the mucous membrane, it will regenerate and reform the fistula. Painstaking removal of this membrane is our only hope of cure.

Dr. Shere referred to the frequency with which malignancy became engrafted in later life upon a congenital cyst basis. This must never be forgotten in urging an early operation.

MODERN PSEUDO-MEDICAL CULTS.

CUTHBERT POWELL, M. D., F. A. C. S.
DENVER.

3.—Naprapathy.

Naprapathy as defined by its self-styled discoverer means to "correct disease."

The available literature on the subject, consisting of the Journal of Napropathy, the Seventh Annual Catalogue of the Chicago College of Naprapathy, advertising leaflets issued by this college and various letters written by officers of the college, have been carefully studied in an endeavor to obtain information regarding this alleged science. No text books have been published dealing with this "system" of healing.

A new and peculiar nomenclature has been evolved by the discoverer of this system, for example:

"Ligatight—a tight ligament; a ligament which has undergone pathologic changes to the end that it has become shortened or less elastic than normal.

"Symptora—a name applied to a functional or organic disturbance of an organ or tissue—the result of disease located elsewhere.

"Vertebond—the ligaments and fasciae which go to make up the bond of union between any two vertebrae."

Naprapathy is advertised by its adherents as a system of curing human ailments by locating and correcting diseased ligaments. The followers of this cult attribute all disease to disorder in the ligaments and connective tissue.

All recognized scientific theories and practices are ruthlessly cast aside by the originator of this new-found panacea, who states that "Naprapathy is the forerunner and fulfillment of that hope for a new era in the history of the healing art when medical and surgical means would be replaced by non-medical and non-surgical means. . . . The founder of this new system has given to drugless and manipulative treatment its first truly scientific principles and its first 'precision methods' for making a diagnosis and planning a therapy."

The instruments of precision which are essential to accurate diagnosis of disease by the Naprapath are a chart book consisting of crude maps of the vertebral column, a spinometer or celluloid measure and a transfer pencil.

The stethoscope, the microscope, instruments for examination of blood, chemical reagents, etc., etc., are not needed by the practitioners of this healing system for the accuraté diagnosis of diseased conditions.

This disregard of recognized instruments of precision and methods of diagnosis is readily understood, however, when we learn that what have been supposed all along to be diseases are not diseases after all.

For instance, from the naprapathic viewpoint, pneumonia is not a disease of the lungs at all. It is a "symptora," the disease being located in the spine. "Pathologic ligaments, not pathologic bacteria, are the cause of pneumonia."

For a naprapath to make a correct diagnosis of pneumonia, it is only necessary that he take his little celluloid measure, his chart book and his transfer pencil, by means of which he discovers a vertebra out of place and forthwith makes a "true diagnosis" of a diseased "spinal ligament." Having thus simply and easily made his "true diagnosis," he manually removes the cause of the pneumonia "symptora," "so that the natural forces of the body can assert themselves and ward off death!"

Bright's disease likewise is only a "symptora." The real disease has been discovered by naprapathy to be "not in the kidney but in the lower dorsal ligaments."

Among many other "curable symptoras" which the naprapath advertises to successfully treat by spinal manipulation, may be mentioned paralysis, deafness, bronchitis, uterine prolapsus, hay fever, Bright's disease, chorea (the cause of this affliction lies in the "first cervical vertebond"), mastoiditis (also "first cervical vertebond"—same treatment for chorea and mastoiditis), amenorrhea, sick headache, etc., etc.

The originators, founders or discoverers of every "sure cure" system for all diseases, or "only true method of treating and curing human ills," are without exception either ignorant fakers or shrewd imposters. Financial success is their paramount ambition. Their literature teems with visionary pictures of the money to be gathered in by practitioners of their pecular systems. Their students are taught how to fleece their victims of fees rather than how to ease their mental and bodily anguish. The following, taken from the Seventh Annual Catalogue of the Chicago College of Naprapathy, under the heading, "Naprapathic Economics," is self-explanatory:

"This course is established to furnish the student Naprapath with a knowledge of the business side of Naprapathic practice. This subject comprises practice building, methods of obtaining and retaining patients, fees, collections and other business relations between Naprapath and patient.

"The management of the College has devised a plan whereby students may be given actual practical experience relative to the business relations between practitioner and patient. . . . This plan involves a number of new and original features of college management. In the first place, we initiated a 'pay clinic,' to take the place of the ordinary 'free clinics.' Patients pay at the rate of $2.50 for five treatments. The next step in advance consisted of having each intern take the responsibility of explaining these facts to his patients and to make the collections personally. . . . The intern would be credited with five per cent of all collections which he would make from his own clinic patients. *This represents the factor supreme in establishing a perfect professional relationship between intern and patient.*"

The "factor supreme" therefore, in establishing a "perfect professional relationship" between the naprapath and his patient, is the ability to get the money.

In a letter dated Chicago, February 20th, 1915, Oakley Smith, the "discoverer" of Naprapathy, states that beginnng in 1899 he studied medicine for two years at the Iowa University College of Medicine. During these two years, although he was in poor health, he "completed all the courses in anatomy, physiology and dissection there given, together with a full line of notes on materia medica, general pathology and surgical clinics."

After this "exhaustive" study of medicine and surgery, he "became convinced that a system of healing disease through drugs was fundamentally wrong." In other words, the conquerors of smallpox and yellow fever, of malaria and hookworm, the master minds of modern surgery and of sanitation, according to this second-year student, were all failures. He therefore severed his connection with the medical college and devoted his time to a search for the "hidden cause of disease," the clue to which he discovered in 1907. This clue was the fact that the source of all disease was in disordered ligaments.

In September, 1908, he incorporated in Chicago a college for the purpose of teaching this new-found science to any gullible person able to scrape up the tuition fees. This "college" advertises a faculty of seven in addition to Oakley Smith the founder and president. The college is thus described in a letter written under date of February 15th, 1915, by the secretary of the Council on Medical Education of the American Medical Association:

"The Chicago College of Naprapathy was inspected November 24, 1914, by myself, in company with Dr. D. P. Maddux of the Pennsylvania Bureau of Medical Education and Licensure. The college occupies a three-story building, which apparently had been a residence. There was one small room which was referred to as a laboratory, but it contained very little apparatus—not sufficient to give an ordinary course in chemistry. The only other equipment in the entire building consisted of a few examination tables, a skeleton, a paper chart manikin, a few charts showing anatomical illustrations and a case of disarticulated bones. All this apparatus, with the exception of the examination tables, was in a room upstairs, where students were being given a lecture on the ulnar bone. The lecturer was reading from 'Gray's anatomy,' and the students were busy copying the lecture word for word. It would have been much more easy had they studied the lesson from the textbook itself.

"A charge of $355 for a two years' course is obtained in advance wherever possible. It is claimed that no correspondence course is given.

"The college has no full-time teachers in any subjects, no dissecting room, no laboratory in bacteriology, pathology, physiology or pharmacology—in fact in no way compares with the lowest standard medical college in the country. The college in no way compares with the pretentiousness of the catalogue it sends out."

There are absolutely no educational requirements for admission to this "college." In fact the only real requirement is the ability of the prospective student to pay the tuition fees.

Advanced standing is granted to osteopaths, graduates of a three or four year medical course, undergraduate medical students, dentists, chiropractors, naturopaths, trained nurses and graduate pharmacists. The course of study is said to cover a period of two years, divided into four terms of five months each. According to the catalogue, the faculty is chosen from the alumni of this college.

The catalogue also says that "The Naprapath is the Master of Anatomy" although the number of hours' study of anatomy is not given, and dissection is not required, it being elective upon payment of an extra fee.

In addition to anatomy, and the theories and practices peculiar to Naprapathy, "just that part of obstetrics and gynecology which interests the Naprapath is taken up." How much or what part of these subjects interests the Naprapath is not stated.

Naprapathy then is one of the latest of the fake healing systems foisted upon the American public, which pretend to cure all disorders of the human system by means of manual adjustments. Like osteopathy and chiropractic this so-called science corrects alleged malpositions, chiefly of the spinal vertebrae, as a means of curing disease. But unlike the osteopath, who discovered that all disease is due to an obstructed blood supply; and the chiropractor, who discovered that all disease is due to impinged nerves; the naprapath has discovered that all diseases are due to disorder in the ligaments and connective tissue.

The "discoverer" of this system of fake healing runs a "college" where, for a stipulated sum paid in advance, he agrees to teach his system to any who may apply. He persuades prospective students to take up the "study" of his system by holding out promises of financial reward in its practice, and advertising that his methods will cure incurable conditions.

The "college" graduates incompetent practitioners of a fake healing system, conferring upon them the degree of Doctor of Naprapathy; and the unsuspecting and suffering public pay for their alleged cures under the protection of our laws.

432 Metropolitan Building.

EXTRACTION OF A COIN FROM A CHILD'S ESOPHAGUS.

FRANK B. STEPHENSON, M.D., MARBLE.

A 14-months-old boy was brought to me on January 24, 1915, the father stating that he thought the baby had a nickel lodged in its throat. A week previously an older child had been playing with a 5-cent piece and had called to his mother that his nickel was gone. The mother came upon the scene at once and noticed that the baby was strangling slightly, but this soon ceased. She thought of the possibility of the baby having swallowed the coin, so she and the father searched the room diligently for it before concluding that such had really been the case.

They immediately ran with the child to a nearby doctor, but, as the little fellow seemed to have no difficulty in swallowing nor pain, all concerned decided that the coin, if swallowed at all, had reached the stomach, and the parents were advised to watch the stools for it.

Since that day the child had seemed occasionally to choke upon its food, especially the more solid kind, and would expel portions of it, but nursed and swallowed liquids without difficulty. Preceding the vomiting it would put its hand to its neck back of and below the left ear, so that the mother thought the child might have earache.

The boy remained thus for a week when

the father brought him to me with the foregoing history.

Not having an X-ray apparatus, I bent a uterine probe into a form which allowed of its passage some distance into the esophagus and, at a point about three inches below its pharyngeal opening. I distinctly felt grating, but could not be sure it did not come from the baby's teeth upon the shank of the instrument. I then used a long curved hemostat, slightly opened, but could not catch hold of nor feel any foreign body. Following this I tried a full-sized stomach tube and met with an obstruction at the distance previously measured with the probe. The tube not having a rounded end, I hoped to push the suspected coin along into the stomach, but could not budge it, so I tried a round-ended rectal tube of slightly smaller caliber and, after a little manipulation, I felt it give and the tube entered the stomach. It was then withdrawn and reinserted into the stomach with slight difficulty.

Concluding that I had probably pushed the obstruction into the stomach, I sent the patient home with instructions to the parents to give it a dose of castor oil and watch for the coin in the stools.

The next morning, upon calling at the home, I found the baby sitting upon a lounge, playing and laughing. He had nursed and had had no trouble in his throat, but the coin had not been recovered in the copious feces. Some bread and milk was fed the baby in my presence and it swallowed a little, seemed to want it, but after a few swallows pushed further food aside. Before long it began to pull at its neck, coughed slightly and then expelled a great deal more than I had seen it eat, the stomach evidently emptying itself freely.

Arrangements were made to have the child brought to the hospital in the afternoon, and in the meantime I secured some elastic spring wire, so called piano wire, from which I improvised a coin catcher by doubling the wire and hooking the looped end in such a way that a nickel fitted in it nicely. This made an elastic instrument that would conform to a curved passage. With the baby under ether anesthesia, I attempted several times to push past the coin, but it seemed each time that the upturned loop caught against it in its downward passage instead of slipping past, as I had hoped it would do. Consequently, I again inserted the rectal tube (with slight difficulty) and, leaving it in place, followed it down with the wire hook; and upon withdrawing the latter I was much gratified to feel the obstructing body coming with it, and then to have the nickel come plainly into view upon the tongue.

Noting the difficult swallowing of solid particles and, on the other hand, the freedom of expulsion from the stomach, I have concluded that the coin was lodged somewhat slantingly, engaged at its lower edge, so that it acted as a valve, partially shutting off intake, but movable enough to allow rather free exit from below.

I think the wire coin catcher has a peculiar advantage in that the curved edge of the coin rests upon two wires and in the interval between them; thus by its own resistance to the pulling force being held automatically in engagement instead of the instrument slipping past one or the other side of its rounded edge, as might occur with a coin extractor which I have seen illustrated.

The relatively slight inconvenience experienced by the child from the coin's presence for one week in the esophagus is interesting.

I judge the obstruction to have occurred near the level of the left primary bronchus.

Röntgen's Seventieth Birthday. In spite of the war, Germans lately found time to celebrate the seventieth birthday of a man whose name will go down among the immortals—"Universitätsprofessor Röntgen." It is twenty years since his discovery of the rays which have been named after him was announced to the Physikalische Gesellschaft in Würzburg. The Röntgen rays are in daily use among the injured behind the European fighting lines. On the 26th of March, the day before his birthday, Röntgen was decorated by the King of Bavaria in München with the insignia of the order of merit St. Michael, first class.

Sanitary Improvement in Oysters. Oysters now being shipped from northern oyster beds in interstate commerce are safer than ever before, according to the United States Department of Agriculture. As a result of the survey of oyster beds by the federal authorities, in cooperation with state authorities, every oyster bed polluted by sewage or other causes, from Virginia to Massachusetts, the northern oyster-producing region, has been closed, and many beds have been placed under such restrictions as to make it practically impossible for oysters at all subject to pollution to be taken and shipped.

THE HARRISON ANTINARCOTIC LAW.

The Effect of Its Enforcement on the Drug Addict.

By Murray Galt Motter, Technical Assistant, Division of Pharmacology, Hygienic Laboratory, United States Public Health Service.

(Reprinted from "Public Health Reports," April 2, 1915.)

As was to be expected, the coming of March 1, 1915, with its attendant restrictions upon traffic in "opium or coca leaves, their salts, derivatives, or preparations," has brought numerous comments and criticisms, not to say protests.

It is interesting to note that, prior to this date, a very extensive campaign of education was conducted by members of the drug trade, for the purpose of informing their fellow members, members of the medical, dental and veterinary professions, and all concerned, as to the workings of this law and the steps to be taken to keep within its bounds. In many instances there was at first a rather widespread resentment at this extension of government control, and its consequent limitation of individual and professional rights and practices. Some physicians even protested that they would not register under the act, but would continue to practice as heretofore, being licensed thereto by the recognized state authorities. Wiser counsels prevailed, however, and it was realized that none of these narcotics could lawfully be "produced, imported, manufactured, compounded, sold, dispensed, or given away" until all the forms and formalities of the law had been complied with.

It has long been recognized that every restrictive measure must, of necessity, impose hardships upon some one; and that, not infrequently, the hardship is most irksome to those whose sense of right and justice would alone prohibit the proscribed practices, without legal enactment. It may be conceded that the taking of inventories, the annual tax, the registration, the special tax stamps, the recording of certain additional data, and the keeping of these records for a period of two years, subject to official inspection, are, to say the least, annoyances. At the same time, it is significant that the urgent need of some effective means of staying the increasing ravages of drug habits has been equally well recognized. Those members of the medical and allied professions, whose experience and observation best qualify them to speak, are heartily in favor of the law. They admit that, prior to its enactment, the case of the "dope fiend" was wellnigh hopeless, because any method of treatment was nullified by the fact that the "fiend" could get his "dope" without difficulty; whereas now there is a fair prospect of effective control, both of the "dope" and of the "fiend."

Just here, however, another factor enters which is of great and urgent importance. Whatever the beginnings of his or her downward course, the confirmed victim of the narcotic habit is a pitiable object, who may well excite the sympathy of all humanity. An outcast, an Ishmaelite, often depraved, always deplorable, against whom the doors of the general hospital have been closed, he is a disgrace to his family and friends, a nuisance to his medical adviser, and sometimes a menace to the community. A mental, moral and physical wreck, obsessed with his desire for his "dope," full of deceit, intrigue and trickery, which have enabled him to get it, he has been preyed upon by human harpies who for gain have, despite the law, supplied him with the means of self-destruction. Sympathy for these "sufferers" has already given voice to an appeal for some alleviation of the law's restrictions in their behalf. In some instances these appeals have been almost hysterical, going even to the extent of a demand for the repeal of the law itself. Naturally, this line of argument will be taken advantage of by the makers and vendors of dope-laden patents, proprietaries and household remedies, who have hitherto eluded all previous laws on this subject, and whose revenues will be enormously curtailed if this new law be strictly enforced. Appeals have been made for the throwing open of certain federal hospitals for the benefit of the victims of the drug habit; others that a home cure be placed in the hands of physicians.

After all, the remedy for the present condition lies well within the hands of the medical profession, and the really reputable hospitals and institutions already organized. If the law be strictly enforced, and the supply of "dope," through other than proper channels, absolutely cut off, the medical practitioner has an opportunity such as he has never before had.

Whether institutional or home treatment will prove the more practicable is a question which must be determined by actual trial in each individual case, guided by the particular conditions therein appearing. Just because these conditions do vary in each case, no rule-of-thumb method can be adopted. The general principles which can be applied in any case are: (1) to gain, if possible, the confidence of the patient and secure his obedience to instructions; (2) to eliminate any drug which may remain in his system; (3) to repair the wreck caused by the drug, through hygienic, dietetic, and perhaps medicinal measures adapted to the special needs of the particular case. Whether in any given case the drug can at once and finally be withdrawn is a question which the attending physician alone can determine. Granted that the law is enforced, the supply is wholly within his control, and none can gainsay nor interfere with his right to administer any narcotic when and where he deems it necessary.

The so-called "cures" are legion, and in their very multiplicity is the surest evidence of their futility. The drug habit, long maintained, produces profound changes in the economy. The very hopelessness of the task, so long as the cause of the trouble was widely distributed and easily accessible, led to a certain indifference and carelessness in the application of remedial measures. The problem must now be attacked from a new vantage point. Hospitals hitherto closed to this class of patients are already realizing their responsibilities in the premises, and rules as to admission have been modified. Too much stress can not be laid upon the principle, so clearly outlined by Dr. Alexander Lambert,* that "each individual case has its own separate problems"; and his methods and results are worthy of study and trial.

Whatever else be done, care should be taken that in discussion or action nothing be said or done which shall weaken the law or strengthen quackery, whether individual or institutional. Time must be allowed in which to put the machinery of the law in smooth running order. When this is effected and everyone fully informed, a careful survey of its workings in a dozen or more large centers of population, followed, if necessary, by ruthless infliction of penalties upon its violators will have a most enlightening and salutary effect. Then and not until then will there be any real hope for the drug addict. No sentimentalism, no greedy commercialism, should be allowed to deprive him of this chance.

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*J. Am. Med. Assoc., 1913, 60: 1933. For an extended bibliography, see also Ibid, 1915, 64: 1022.

News Notes

In a recent letter to the press Dr. Charles S. Elder, candidate for the office of Commissioner of Social Welfare, placed himself in frank opposition to the proposal to issue a half million dollars' worth of bonds for various improvements in Denver's hospital service. He argues that "the trouble with the County Hospital is not that it is too small but that admissions have been unwisely distributed. It is more of a poorhouse than a hospital."

Dr. Sherman Williams has retired from, and the name of Dr. J. C. McGillivray has been added to, the list of candidates for the Commissionership of Social Welfare.

To the many announcements already made of medical gatherings to be held this summer at San Francisco is now added the annual meeting of the American Proctologic Society, on June 21 and 22.

Drs. M. E. Preston and J. C. McGillivray, former police surgeons, appeared before the Denver City Council to protest against a proposed ordinance to abolish the position of police surgeon. They maintain that under the change of system whereby this work was turned over to the County Hospital, the service has been inadequate and detrimental.

Dr. A. C. McCain of Ault has been appointed by the Governor as a member of the State Board of Medical Examiners.

The United States Public Health Service announces for June 21, 1915, an examination for admission to the grade of assistant surgeon in the service. The examination will be held at Washington, Boston, New York, Chicago, St. Louis, Louisville, New Orleans and San Francisco.

The Chicago Medical Society extends a cordial invitation to the members of the Colorado State Medical Society to join a special train party leaving Chicago, Minneapolis, St. Louis and Memphis on June 17th, merging at Belleville, Kansas, at 6:15 p. m., June 18th, and traveling thence by C. R. I. & P. R. R. to Colorado Springs; D. & R. G. to Salt Lake, and Western Pacific to San Francisco, arriving June 21st.

The Santa Fé Railroad announces an "American Medical Association Grand Cañon Special" train to run to the San Francisco meeting of the A. M. A., leaving Colorado points on the 14th and arriving in San Francisco on the 21st of June.

The American Social Hygiene Association of New York offer a prize of one thousand dollars for a social hygiene pamphlet for adolescents. The prize will be provided by the Metropolitan Life Insurance Company. The contest will close on July 31, 1915.

The Mesa County Medical Society has decided to put forward a medical candidate for the local school board.

Dr. Rodman, president-elect of the A. M. A., will address the Denver County Medical Society on Monday, June 14th, on the "Early Manifestations of Cancer."

Mr. and Mrs. Tipton of Las Vegas recently made a stay of ten days in Denver.

Dr. Oliver Lyons recently expedited the departure of a burglar and a pocketbook containing $90 by shoving them off the porch outside his bedroom window.

A Denver physician was fined $10 and costs for prescribing opium to an habitual user.

Dr. J. Herman Graves of Cañon City was the successful defendant in a suit brought by a surgical patient, on the ground that he had removed a portion of her anatomy with which she had not desired to part.

Dr. J. N. Hall, upon his return from Buffalo, N. Y., reports a most successful meeting of the Medical Society of the State of New York. The Society met in the great Sixty-fifth Regiment Armory, a building large enough to house the largest medical gathering of the country. The annual banquet at the Statter hotel was a great success. Dr. Hall read by invitation a paper upon "The Role of the Superior Mesenteric Vessels in Abdominal Disease."

Dr. W. W. Crook of Glenwood Springs has been appointed medical director in charge of the baths of the Glenwood Hot Springs and Hotel Company.

Dr. M. E. V. Fraser is quoted in a Denver newspaper as expressing a decided opinion to the effect that the paternal pipe, cigar and cigarette are dangerous to the well-being of the baby.

Dr. W. A. Jolley of Boulder has received an appointment under the American Red Cross Association, by virtue of which he will proceed to Serbia to take part in the fight against the epidemic of typhus fever there. Two nurses from Denver, both graduates of the County Hospital Training School, Miss Sophia Weber and Mrs. Hattie Biddle, are on their way to the same field of battle against disease. A number of Dr. Jolley's friends in Boulder presented him with a purse of money at a dinner attended by the Boulder Medical Society.

Dr. Henry Merritt Stenhouse, son of Dr. James Stenhouse of Denver, has qualified as assistant surgeon in the United States navy.

Dr. C. B. Lyman was called to California in connection with the illness of Rodney Curtis. From San Francisco Dr. Lyman and his wife planned to make a short trip to Honolulu before returning to Denver.

Dr. John S. Fox of Silverton has gone to Europe to serve with the Red Cross Hospital Corps on the side of the allies.

We are asked to announce that anyone interested in a little deaf child can obtain free literature explaining approved methods of training deaf children from infancy to school age by writing to The Volta Bureau for the Increase and Diffusion of Knowledge Relating to the Deaf, 1601 Thirty-fifth St. N. W., Washington, D. C. Age of child and other details are welcomed.

The office effects of the late Dr. J. A. Rink are for sale, together or separately, at 624 Fourteenth street.

Dr. W. A. Schoen of Cripple Creek had a narrow escape when his car collided with a switch engine some time back. The enterprising newspaper reporter states that "the result of the accident was that Dr. Schoen was uninjured."

Dr. A. I. Hayes of Victor, who was injured a while ago in an automobile accident, is now able to hobble around with the aid of crutches.

The death is reported of Dr. John A. Gale, formerly of Alamosa and Creede.

Mrs. Carey K. Fleming, widow of the late Dr. Carey K. Fleming, died in Denver on April 16th, five years after her husband.

Dr. Walter Hilliard, the Denver ophthalmologist, has been seriously ill for the past two months.

Dr. H. M. Wilkinson of Denver has spent six weeks in Baltimore, Philadelphia and New York City clinics, paying special attention to proctology.

Dr. and Mrs. Carl G. Parsons leave about the middle of May for a visit of two or three months to California. Dr. John Herrick will be in charge of Dr. Parsons' work.

Dr. Val. Fischer of Boulder has been motoring in California.

Dr. J. L. Mortimer has been confined to the house for some time, but is improving steadily.

Dr. C. M. Spicer of Lamar is doing hospital work in New York City.

Dr. M. U. Payne has returned to Craig after spending four months in the East.

Bonds for $234,000 have been issued to defray the cost of the three additional stories which are to be built on the Metropolitan building, Denver.

Dr. C. E. Bower has decided to locate at Ault.

Dr. Replogle of Fort Collins will spend his summer vacation in a week's visit at the Mayo clinics and in attendance at the American Institute of Homeopathy in Chicago. He will go on to Indianapolis, from which city he and his wife expect to drive home in a new automobile.

Pueblo News Notes.

Drs. A. S. Brunk and E. W. Ragsdale of La Junta were visitors at the meeting of the Pueblo County Medical Society April 20th.

Two welcome visitors to the Pueblo County Medical Society on the evening of May 4th were Drs. L. H. McKinnie and C. O. Giese of Colorado Springs.

Dr. W. F. Rich has returned from a two weeks' trip to Michigan, where he was called on account of the illness of his wife.

Dr. W. S. Chapman of Walsenburg was a visitor in Pueblo the first part of this month.

Dr. E. C. Smith of Beloit, Wis., who formerly practised medicine here, spent a few days among friends in Pueblo. Dr. Smith has been attending the Panama Exposition.

Dr. H. B. Killough has been confined to his bed for the last two weeks on account of a severe arthritis of his ankle.

Dr. W. L. Dorland, who has been quite ill for the last two months, has improved sufficiently to be out of doors.

Dr. Royal H. Finney has been appointed local surgeon for the Santa Fé Railroad.

Dr. Jean Holt, formerly superintendent of the Southern Colorado General Hospital, is taking a rest in Colorado Springs.

Dr. Bon O. Adams and family are in California visiting the Exposition.

Dr. F. J. Peirce, formerly of Devil's Lake, N. D., has taken charge of the Southern Colorado General Hospital and will devote his time to building up this institution. Many improvements will be made in the near future. One unique innovation, among other improvements of the operating room, is a window in the hallway through which insistent relatives or friends may view the operation, without the usual danger of their presence. Dr. Peirce will not engage in general practice but will limit himself to consultation and referred cases.

Colorado Springs Notes.

Dr. O. R. Gilbert has just returned from a trip to Indianapolis, Ind., as a member of the Pike's Peak Boosters of the Ocean-to-Ocean Highway.

Dr. Stough and wife are on a trip to the Pacific coast and the Hawaiian islands.

Dr. D. H. Rice and family are visiting the California expositions.

Dr. W. V. Mullin is on a trip to the Adirondacks.

Dr. O. W. Spicer is mourning the loss of his wife, who died recently.

Dr. H. P. Daniels of Colorado City, Colo., was called to St. Louis a short while ago by the death of his sister's husband.

Dr. J. D. Nifong returned early in April from California, where he had spent the winter. The trip was made by motor.

Dr. F. B. Rothrock is in Rochester, Minn., for a short while. Later he will go to Chicago and New York.

Dr. Charles N. Shellenberger, aged 59, a practitioner of Colorado Springs, died on April 29.

Dr. Claude E. Richmond and Miss Bernice Hosman of Colorado Springs were married on April 29, and will soon be at home to their friends.

Constituent Societies

CITY AND COUNTY OF DENVER.

The regular meeting of the **Denver County Medical Society** was held on April 6, 1915, Dr. W. W. Grant in the chair.

Dr. Martin E. Stiffler was elected a member of the Society.

Dr. Grant appointed the following committee to arrange for a clinic to be given on June 9, 1915, for the "Physicians' Travel Club": Drs Edson, Arndt, Carmody and Aubrey Williams.

A paper was read by Drs. Henry Sewall and Cuthbert Powell entitled "Experimental Evidence for a New Factor in Immunity." Discussed by Dr. Hillkowitz.

Dr. C. A. Ferris gave a demonstration of "Methods of Resuscitation in the Newborn." Discussed by Drs. Monson, Whitney, Rover, Sewall and Spivak.

H. R. STILWILL, Secretary.

The regular meeting of the **Denver County Medical Society** was held on April 20, 1915, Dr. W. W. Grant presiding.

Drs. Robert S. Burket and H. R. McKeen were elected members of the Society.

A paper entitled "Diagnosis and Treatment of Papillary or Villous Tumors of the Bladder" was read by Dr. William M. Spitzer. The paper was fully discussed by Drs. Hegner, Buchtel, Hillkowitz, Shere, Carmody and Howard.

Dr. W. C. Bane read a paper on "Aural Eczema Due to Excess of Carbohydrates in the Diet." Discussion opened by Dr. A. J. Markley. Dr. Hudston in discussion reported a case of aural eczema.

Dr. E. W. Lazell read a paper entitled "Some Notes on the Treatment of Syphilis." Discussed by Dr. T. R. Love.

Dr. C. E. Edson reported progress of the committee which is arranging a clinic and entertainment for members of the "Physicians' Travel Club," which will be here on June 9, 1915.

H. R. STILWILL, Secretary.

The regular business meeting of the **Medical Society of the City and County of Denver** was held on May 4, 1915, Dr. Oliver Lyons, vice president, presiding.

Dr. W. A. Jayne presented resolutions on the death of Dr. G. H. Stover, which were placed on file. (See below this report.)

A statement was made by Dr. Jayne as a member of the board of trustees in regard to leasing the present quarters of the County Society and Medical Library for a period of ten years. Moved by Dr. Black that the Society enter into a contract with Gano-Downs for the rental of the rooms for a period of ten years. Carried.

A paper entitled "The Rôle of the Superior Mesenteric Vessels in Abdominal Diseases" was read by Dr. J. N. Hall. This paper had recently been read by Dr. Hall at a meeting of the New York State Medical Society, and was illustrated by anatomical drawings. Discussed by Dr. Buchtel.

A paper was read by Dr. C. E. Tennant entitled "Symptoms of Dyspepsia Associated With Surgical Lesions." (This will be published later in Colorado Medicine.)

Dr. Leonard Freeman read an "In Memoriam" to Dr. G. H. Stover, in which a part of Dr. Stover's diary was given. Some pictures of Dr. Stover taken in Honolulu and Florida were shown on the screen.

Dr. Lyons announced that Dr. Rodman, president of the A. M. A., would be in Denver Monday, June 14, and would deliver an address before the Society on "The Early Manifestations of Cancer."

H. R. STILWILL, Secretary.

RESOLUTIONS ON THE DEATH OF DR. GEO. H. STOVER.

By Committee of the Medical Society of the City and County of Denver.

Dr. George H. Stover of Denver died in Baltimore March 25th at the age of forty-four years. To be called so young from his labors is a great loss to both the laity and the medical profession. He was a pioneer in radiography and all his professional energies were devoted to its development. His work in this field was brilliant and successful and he became one of the foremost authorities on the subject. Like many pioneers in radiography, he suffered severe burns which were a cause of painful discomfort until his death.

His philosophy of life was to make the best of things and not to complain. With one hand tied up at a time he worked with the other and greeted his friends with a smile. He was a great worker, a hard student and a poor sleeper. A large part of each night he spent reading in bed. He took an active part in all things medical. He was ever ready to do his part and did it well. He was president of this Society during the year of 1908. He was Dean of the Faculty of the Denver and Gross School of Medicine for several years prior to the amalgamation of that school with the Medical Department of the University of Colorado, and took a prominent part in bringing about the union of the two schools, thus reducing the number of medical schools to one in Colorado.

After having served a number of years on the editorial staff of the Denver Medical Times, he became its editor about two years ago. His ability as an original and sparkling writer was well recognized. He never hesitated to speak plainly and his meaning was not veiled in obscure phraseology.

He has left his mark and the work he has performed for us will endure. He was a man who will not be forgotten. The coming years will not efface his memory, but will tend to brighten it so that his example may serve as an inspiration to other men, that they may emulate him in fortitude, courage and smiling resignation.

To his family we desire to extend our sympathy in their bereavement, and to encourage them to seek consolation in the thought that though his life was short it was full and rounded with achievement and with work well performed.

Signed:

MELVILLE BLACK,
WALTER A. JAYNE,
ROBERT LEVY,
Committee.

Denver, Colo., April 16, 1915.

EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held at the Antlers Hotel on April 14, with the president, Dr. McConnell, presiding, and twenty-nine members present.

Drs. George L. Sharp and H. B. McCorkle were elected to membership in the Society.

Dr. Elmer L. Timmons was elected delegate to the State Society, with Dr. H. C. Moses first alternate and Dr. Z. H. McClanahan second.

Dr. A. H. Peters showed the heart from a patient killed in an automobile accident in which both auricles were ruptured with no injury to the pericardium.

Dr. L. H. McKinnie read a paper on "Unusual Complications of Pregnancy, Appendicitis, Diabetis and Intestinal Obstruction." Discussed by Drs. McClanahan, Timmons, Tucker and Bortree.

Dr. Z. H. McClanahan spoke under "good of the Society" and said that he though that the order of business should be changed so that "good of the Society" would come earlier in the evening, and that there should be more clinical cases shown, as this would be productive of more interest in the Society. There being no more business the Society adjourned to the dining room, where lunch was served.

GEORGE, B. GILMORE,
Secretary.

OTERO COUNTY.

The regular meeting of the Otero County Medical Society was held at the Santa Fe Hospital in La Junta on April 13th, 1915. Dr. A. S. Brunk presided.

Dr. B. B. Blotz of Rocky Ford read a paper on "Leukemia" with a report of an interesting case. Dr. A. L. Stubbs read a paper on "Hay Fever In the Arkansas Valley," which aroused considerable discussion in regard to the etiology and treatment of this disease.

R. S. JOHNSTON, Secretary.

PUEBLO COUNTY.

The Pueblo County Medical Society met in regular session April 20, 1915, President Taylor presiding.

The applications for membership of Drs. F. J. Peirce and B. M. Steinberg were read and referred to the Membership Committee.

Dr. T. A. Stoddard, the essayist of the evening, presented a paper on "Recent Advances in Surgery". The paper was a résumé of many of the notable advances in surgery during the last twenty-five years. Dr. Corwin opened the discussion and was followed by most of the members present.

The Society enjoyed the presence of two visitors from La Junta, Drs. Ragsdale and Brunk.

J. H. WOODBRIDGE.
Secretary.

The Pueblo County Medical Society, President Taylor presiding, met in regular session May 4, 1915, with sixteen members present.

The Membership Committee reported favorably on the applications of Drs. F. J. Peirce and B. M. Steinberg.

Dr. A. B. Lockridge presented an excellent paper on "Entero-Colitis." The paper was very freely discussed, especially in regard to the diet of sick infants.

An interesting clinical case of ulcer of the stomach, from which the patient later died, was reported to the Society. Dr. Ray Taylor reported the clinical findings, Dr. Epler the skiagraphic findings and Dr. F. M. Heller showed the pathological specimen.

A communication from the organizers of the Seventh Pan-American Congress was read, and the president was directed to appoint a delegate to this congress.

The secretary was instructed to submit the constitution and by-laws for estimates of cost of printing.

Drs. L. H. McKinnie and C. O. Giese of Colorado Springs were guests of the Society at this meeting.

J. H. WOODBRIDGE,
Secretary.

WELD COUNTY.

The regular monthly meeting of the **Weld County Medical Society** was held in the Greeley city hall, Thursday evening, March 1, 1915.

The meeting was called to order at 8 p. m. with President E. W. Knowles in the chair, and a full attendance of members.

Routine business having been transacted, Dr. Ringle presented the paper of the evening, the subject being "Phthisis bulbi." The doctor gave a short but very interesting paper followed by a general discussion.

Several clinical cases were reported.

J. W. LEHAN, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

The Society met on April 17, 1915, at the office of Dr. E. T. Boyd, Denver, at whose request Dr. W. F. Matson of Denver presided.

It was decided to hold a special meeting of the society with Dr. J. J. Pattee of Pueblo in May, the date of which will be decided by the Executive Committee.

Dr. E. T. Boyd, Denver, was elected secretary, Dr. H. R. Stilwill, Denver, treasurer, and Dr. J. A. Patterson, Colorado Springs, third member of the Executive Committee.

Dr. Edward Jackson, Denver, reported that the Committee to arrange for a Midsummer Meeting had secured promises of papers from twelve outside men for a meeting of the Society on July 22 and 23; and also stated that the Committee originally consisting of Drs. Edward Jackson, J. J. Pattee, Pueblo, and E. R. Neeper, Colorado Springs, had been enlarged by the addition of Drs. Melville Black and G. F. Libby, both of Denver.

Dr. Melville Black presented a man with a dermoid cyst involving conjunctiva and cornea of right eye externally.

Dr. Black also presented a woman with a a scleritis of which the etiology was very obscure; also two cases upon which he had operated for trachoma.

Dr. Black presented a man 27 years of age, whose left eye had developed sympathetic inflammation six weeks after injury to the right eye. The right eye had been removed five days after the onset of sympathetic trouble, but the sympathizing eye had progressed from bad to worse, until now naught remained except perception of light. The patient wished to know if anything could be done to partially restore vision.

Dr. W. C. Bane, Denver, had a patient present with pemphigus of the conjunctiva. This patient had been presented to the Society before, but was now shown because of involvement of the other eye. The case is now being treated by x-rays, treatment with which had proven successful in the eye first affected. Report will be made later as to the result.

Dr. Bane also presented a case of retinitis pigmentosa, full report of which will later appear in the Ophthalmic Record and Annals of Ophthalmology.

Dr. E. E. McKeown, Denver, presented a boy who had been struck in the right eye with a brickbat, the result being irregular stable dilatation of the pupil and dislocation of the lens.

Dr. E. T. Boyd showed a patient whose right eye he had enucleated because of blindness and the presence in the vitreous of an irremovable piece of steel, and whose left eye had been injured six years ago and now possessed but little vision because of organized inflammatory products and opaque capsule in the pupillary area.

Dr. E. R. Neeper, Colorado Springs, reported a case of corneal ulcer which was peculiar in that, during the period of existence of the ulcer there was little or no pain, but that upon healing, which occurred promptly, pain began to appear, and when the cornea no longer stained, pain became intense and unbearable. Denudation of the cornea over the former ulcerated area relieved pain entirely but subsequent healing was again followed by excruciating pain. This cycle had occurred three times.

Dr. J. A. Patterson, Colorado Springs, reported the case of a man who, in attempting to make his watch run, released the mainspring in such a way that he received an extensive cut of the cornea.

E. T. BOYD, Secretary.

THE FORTIETH ANNUAL MEETING OF THE AMERICAN ACADEMY OF MEDICINE.

Beginning June 26, 1915, the American Academy of Medicine will hold its fortieth annual meeting at San Francisco in the Auditorium Hall of the Panama-Pacific Exposition. The first session on Friday afternoon will be devoted to executive business. The evening session, beginning at 8 o'clock, will be devoted to the address of the president, Dr. Woods Hutchinson, and the annual address on "The Relation of Medicine to the Peace Movement," by Dr. David Starr Jordan, chancellor of Leland Stanford University. The scientific sessions will continue through Saturday and Monday and a very attractive program of sociologic topics has been prepared.

Packing and Shipping of Oysters Under Control. Federal experts have found that shucked oysters as they now are packed for shipment can be sent long distances and arrive at their destination in the same condition both bacteriologically and chemically as they were when they were first opened at the coast. One thing that has helped to bring this about is the provision of the food and drug act, which prevents the shipping of shucked oysters mixed with ice or water, so that all shucked oysters shipped in interstate commerce are sealed in tin containers which are surrounded by ice during shipment.

Book Reviews

Operative Therapeusis. Edited by Alexander Bryan Thompson, Ph.B., M.D. In five volumes. D. Appleton & Co., 1915, New York and London.

(A review of the first three volumes of this work appeared in the April issue of Colorado Medicine.)

Volume IV treats of hernia, the abdomen and its contents, the rectum, kidney, bladder and prostate.

The article on hernia is extremely valuable. The author's description of the anatomy of hernia and methods of treatment is of unusual interest.

The amount of space devoted to the injection treatment for hemorrhoids and to the ligature operation seems somewhat out of proportion to the whole subject of hemorrhoids. The injection treatment is rarely used on account of its dangers, and the clamp and cautery operation has almost entirely superseded the old ligature method, which gives rise to a large amount of after pain.

The article on operations on the kidney deals with nothing new. The method of supporting the kidney with a strip or strips of fascia lata is not mentioned. The illustrations and description of a suprapubic prostatectomy are interesting and instructive.

Volume V contains articles on the external genitals, cystoscopy, gynecology, operative obstetrics and the hand and foot.

The usual operations upon the external genitals are considered, and there are articles on surgery of the bladder and transplantation of the ureters.

An interesting chapter is that devoted to the technic of cystoscopy and operative procedures with the cystoscope.

The greater portion of this volume is given up to the subjects of gynecology and operative obstetrics, both of which are treated in a most interesting and instructive manner.

The chapters dealing with the general considerations and methods of examination under each of the above subjects are most valuable, especially to the general practitioner who attempts gynecologic diagnoses and does obstetric work. C. P.

A Practical Treatise on Diseases of the Skin. By Oliver S. Ormsby, M.D., Professor of Skin and Venereal Diseases in the Rush Medical College, Chicago. Octavo, 1,168 pages, with 303 engravings and 39 plates in colors and monochrome. Cloth, $6, net. Lea & Febiger, publishers, Philadelphia and New York.

This, the most recent of American text-books on dermatology, presents in an authoritative and most comprehensive manner the present status of the scientific knowledge of diseases of the skin. Many substantial contributions to this subject have been made during the past few years, some of which appear here for the first time in a text-book; the well-selected references affording a means of approach to the best that the literature contains on these subjects in any language.

The detailed suggestions for diagnosis and treatment, incorporating as they do the recently devised methods along these lines with the older plans that long trial has proved of value, constitute the best of modern conceptions directed toward the successful management of disorders of the skin.

Good illustrations are an indispensable part of a text-book on dermatology, and those in this book compare most favorably with any to be seen in a similar work.

We find here emphasized more than in most such works the necessity of regarding many diseases of the skin in their constitutional rather than in their local aspects, a teaching of which the subject has long stood in great need. The author properly insists that the capable dermatologist must be first a capable physician.

A. J. M.

Infection and Immunity. A Text-book of Immunology and Serology. For Students and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore; Pathologist to the Union Protestant Infirmary, the Women's Hospital of Maryland and the Mercy Hospital, Baltimore. Third Edition, enlarged and thoroughly revised. Octavo, 351 pages, illustrated. Cloth, $3.25 net. Lea & Febiger, publishers, Philadelphia and New York. 1915.

The third edition of "Infection and Immunity" has been thoroughly revised and all the newer advances in this important department of medical science are carefully described. The section on the Wassermann reaction has been entirely rewritten, and in the same chapter, that on the application of immunological principles to diagnosis, a good account is given of the work of Abderhalden on protective ferments, including the pregnancy test and similar reactions in other pathological conditions. Among other novelties, the author describes the allergic skin reaction proposed by Schick for the detection of the presence or absence of diphtheria antitoxin in the blood of persons who have been or may be exposed to the disease. The account of Noguchi's luetin reaction is well illustrated in its various stages by colored plates. Much space is devoted to chemotherapy, especially as regards syphilis, pneumonia and cancer. A very valuable addition to the book is in the form of bibliographies appended to the respective chapters, and containing references to the more important writings on the subjects under discussion.

As with many other excellent volumes, the weakest part of this book is its index. Thus page 239, on which Schick's allergic skin reaction for the presence of diphtheria antitoxin is described, is not shown in the index under "allergin," "allergic reactions" or "allergic diagnostic reactions"; nor under "skin"; nor under "diphtheria"; nor under "antitoxin"; although all these expressions appear in the index. It is to be hoped that some day medical publishers will realize that the index is an important part of most medical publications, and will employ experts who will take this detail of book-making out of the hands of the usually inexpert authors. R. C. B.

The Practical Medicine Series; Vol. I; General Medicine. Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, A.M., M.D.; Series 1915. Chicago: The Year Book Publishers.

As usual, the latest volume of the "Practical Medicine Series" contains a concise, sane and very useful account of all important advances in the field covered which have been published in the past year. The impractical and doubtful are carefully eliminated, and as a result the book, though small, is all "meat." Especially full are the reviews of "Tuberculosis" and "Pneumonia." The entire section on "Diseases of the Heart" is excellent; there is an excellent résumé of our present conceptions of the significance of variations in blood pressure and a rather full section on the rôle of the thyroid in disease. Altogether the book is a very useful review, even for those who follow medical literature with some care from month to month. C. N. M.

The Clinics of John B. Murphy, M. D., at the Mercy Hospital, Chicago, April, 1915. Published bi-monthly by W. B. Saunders Company.

The general character and quality of the "Clinics" are so well known, that it will suffice to indicate the contents of the current number. They are: Clinical Talks on Recurrent Osteomyelitis and Periostitis; Bony Lipping of the Right Acetabular Margin and of the Neck of the Femur, Treated by Arthroplasty; Carcinoma of the Breast (a talk by Dr. W. L. Rodman); Carcinoma of the Colon and Miliary Carcinosis of the Peritoneum; Epithelioma of the Lip from a Lupus Scar; Intramural Fibroid of the Uterus; Hypertrophy of the Prostate with Multiple Abscess and Fistula, prostatectomy; Diagnostic Significance of Spontaneous Massive Coagulation of Cerebrospinal Fluid with Xanthochromia (by Dr. Charles Louis Mix).

Materia Medica and Therapeutics. A Text-Book for Nurses. By Linette A. Parker, B.Sc., R. N., Instructor in Nursing and Health, Teachers' College, Columbia University. 12mo., 311 pages, illustrated with twenty-nine engravings and three plates. Cloth, $1.75, net. Lea & Febiger, publishers, Philadelphia and New York. 1915.

It is a pleasure to review such a text-book as that of Linette A. Parker. This volume on materia medica and therapeutics, while presenting its material with great simplicity, is yet complete in every detail. It contains nothing superfluous, but provides all that any well-equipped nurse needs to know on these subjects. It is entirely up to date, containing chapters on electro, serum and ray therapy, presented in such form as to be interesting even to the lay reader. The author has taken advantage of the laws of association in presenting her work from cause to effect in unique topical arrangement. The illustrations are singularly well chosen, and the general make-up of the book is almost luxurious. Its only disadvantage is that its price places it beyond the reach of a great number of student nurses.

MAUD McCLASKIE, R.N.,
Superintendent of Nurses, City and County Hospital, Denver.

"Swat the Fly". A one-act fantasy by Eleanor Gates, author of "The Poor Little Rich Girl", etc. Colored Jacket by Everitt Shinn. The Arrow Publishing Company, 116 West Fifty Ninth street, New York. Price 25 cents.

This is a very ingenious and entertaining handling of the subject of the influence of the fly in carrying disease. The persons of the play are the doctor, the woman inspector (an antivivisectionist), the boy, the dog, the cat, the horse, the monkey, the rabbit, and the fly. Incidentally the parts played by the various animals in the preparation of protectives against disease are touched upon, and the fantasy ends with the saving of the inspector's boy from diphtheria by means of serum prepared through equine vivisection.

Minor Publications received since the last issue of Colorado Medicine: (1) The Associated Out-Patient Clinics of the City of New York; Second Annual Report, 1914. (2) Sixty-second Annual Report of the Pennsylvania Training School for Feeble-Minded Children, Elwyn, Pa.

Christian Science Under the Search Light. By Rev. N. B. Cooksey. Publishing house of the M. E. Church, South, Nashville, Tenn. Smith and Lamar, agents. 1915. 50 cents.

This is a superficial exposition of the curiosities and contradictions comprised in the Christian Science faith, which, from its rather crude style, might well antagonize many who have no leanings toward that cult. C. N. M.

PITUITARY EXTRACT FOR TYMPANITES AND DIARRHEA ASSOCIATED WITH PNEUMONIA.

Alexander Howell (A. J. M. S., Oct., 1914) says that in the therapeutic use of pituitary extract in pneumonia the emphasis has thus far been chiefly laid on its marked stimulating effect on the circulation, while other favorable effects have been overlooked. While it is true that all depression of blood pressure in pneumonia can be traced to the effect of the action of the pneumonic toxin directly or indirectly upon the circulation, yet much can be gained from an analysis of how various factors which affect the course of the disease in this way act. As examples of factors acting unfavorably in a general way, lack of fresh air, improper or insufficient nourishment, excessive cough, pain, loss of sleep, etc., may be mentioned. However, factors present themselves which in addition to their general capacity for harm manifest a specific action on the circulation. Two such conditions are, tympanitic distention and diarrhea. By tympanites the circulation is hampered in a two-fold way. The diaphragm is forced upward so that not only does the capacity of the chest at rest suffer, but its active capacity is curtailed through inability of the diaphragm to descend freely on inspiration. This results in impaired oxygenation of the blood, causing increased effort in breathing, weakened heart, etc.

The immediate cause of the distention is a more or less complete paresis of the intestine, toxic in origin and directly dependent on the pneumonic poison. Of course everything should be done that is possible to increase elimination of the toxins and to sustain the circulation and respiration. These efforts, however, are generally futile so long as the abdominal distention continues, so that the immediate need is the relief of distention. Howell has found that pituitrin accomplishes this to a degree which has not been attained by any other method. The basis of this action is its now well-known stimulating effect on unstriped muscle fibers. Incidental to the effect upon the intestinal muscle is also a very marked effect upon the heart and arterioles.

As to the diarrhea, he says that much discretion must be used to discriminate between a salutary diarrhea of the early stages of pneumonia and that which is due to depression, in the later stages, and which has the effect of causing still further depression. He uses the sphygmo-manometer largely as his guide, and when he finds a high systolic and diastolic pressure he encourages catharsis, while if there be a diarrhea of the opposite type, he controls it with pituitrin, which he thinks acts by increasing the tone of the intestinal vessels and glands.

He gives one cc. hypodermically and repeats it in from one to four hours if necessary. The action is manifested by immediate passage of flatus, decrease of dyspnea and lessening of diarrhea, followed by improved circulation. O. M. G.

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Editorial Comment

THE STATE SOCIETY MEETING.

AN AMPLE LIST OF NAMES OF VOLUNTEERS FOR SCIENTIFIC PAPERS TO BE READ AT THE ANNUAL MEETING OF THE STATE SOCIETY IN DENVER HAS BEEN FURNISHED TO THE PROGRAM COMMITTEE. IN ORDER TO AVOID OMISSIONS FROM, OR DELAY IN THE PREPARATION OF, THE DETAILED PROGRAM, THE COMMITTEE WILL GREATLY APPRECIATE IT IF ALL THOSE WHO HAVE UNDERTAKEN TO READ PAPERS WILL AT ONCE COMMUNICATE THE TITLES AND BRIEF ABSTRACTS OF THEIR PAPERS (WHERE THIS HAS NOT ALREADY BEEN DONE) TO THE CHAIRMAN OF THE COMMITTEE,

S. FOSDICK JONES,
250 Metropolitan Building Denver.

SYPHILIS AS A PUBLIC HEALTH MENACE.

Moral superstition still stands in the way of the application of common sense to the subject of venereal diseases. But here, as in dealing with other contagious, diseases, plain selfishness plays a greater part than is usually acknowledged.

Thus we find that the greatest objection to the notification and quarantining of cases of scarlet fever arises from the fear of personal inconvenience and opprobrium. In like fashion, much of the opposition to notification and other steps for the control of syphilis and gonorrhea depends upon the fear on the one hand that the infected individual may be restrained from carrying on his business, and on the other that society may brand him as an outcast. So many "respectable" members of society live in glass houses!

It is still far from proper to mention such a word as "syphilis" in polite conversation; simply because in our prudery we have tabooed the open consideration of sex, and because syphilis is a disease in the main dependent upon the relations between the sexes. As between scarlet fever and syphilis, most of us would prefer to have the former. From it patients make practically a complete recovery, or die outright, while the syphilitic continues for years to be a menace to others. Yet we restrain the scarlet fever patient and allow the syphilitic unlimited license to transmit his disease not only to his own but to future generations.

There are signs of progress. The play "Damaged Goods," artistically crude and poorly acted as it was, yet taught effectively some lessons which would have been impossible twenty years ago. Largely on the basis of recent diagnostic methods, much is being done toward bringing the syphilitic systematically under proper medical care. In this direction the energetic department of health of the City of New York is rendering conspicuous service. (Monthly Bulletin, March, 1915.)

It has always been extremely difficult to secure reliable figures as to the incidence of the disease. Out of the 8,000 physicians practising in the Greater City of New York, a circular request to state the number of cases which had been under their care during the previous year was only answered by 1,500, who recorded a total of 13,388 cases.

A series of 15,000 tests made recently in the pathological department of the Bellevue Hospital shows that from 22 to 25 per cent of the patients entering that hospital yield positive Wassermann reactions; 3,046 inmates of the workhouse on Blackwell's Island gave 1,468 positive reactions, or 48.2 per cent. Tests made at several other institutions, and on a large number of applicants for push-cart peddlers' licenses, indicate that routine Wassermann examinations made on the entire adult population of the City of New York would yield positive results in approximately 10 per cent of the cases.

A very large proportion of the deaths from syphilis fail to appear as such in the mortality statistics, being listed under the heads of arterial disease (including aneurysm), chronic heart disease, chronic kidney disease, chronic liver disease, locomotor ataxia, and paresis. The writer in the New York Bulletin believes that it would be correct to regard syphilitic infection as responsible for one point in New York's present death rate of 14 per thousand. This, of course, excludes the large inroads made by syphilis upon the natural increase of population by the production of spontaneous abortion and miscarriage.

The value of public serological work is suggested by the fact that out of about 8,000 physicians in Greater New York, 3,148 have called upon the city's serological laboratory for Wassermann tests. It is safe to say that in many of these cases the test would not have been made as a private enterprise. Another very necessary step in the campaign against venereal diseases is the establishment of special clinics for treating them.

Existing clinical facilities are usually inadequate for the purpose. Most hospitals refuse to receive syphilitics, unless it be for the treatment of some of the complications or terminal disorders of the disease.

Besides its serological work, the New York Board of Health has required confidential reports from institutions and physicians; it has forbidden the employment of persons having a venereal disease in places where food is prepared, handled or sold; and it publishes "circulars of information and cards of instruction intended to guide actual sufferers from venereal disease in securing proper treatment, and to insure such precautions as will prevent the transmissibility of their malady to others." The department also publishes in newspapers which still print the advertisements of venereal quacks, and displays in the lavatories of saloons and other places, an announcement in the following terms: "Venereal Diseases: Confidential advice regarding gonorrhea, syphilis and sex disease can be obtained free at room 207, the Department of Health. . . . Avoid advertising specialists and patent medicines."

The writer in the Bulletin well says: "As public health administrators, we are concerned with a dangerous infectious disease that should be checked without awaiting a moral reformation of society."

A HOUSING PROBLEM IN DENVER.

We are accustomed to think of the housing problem as confined to the older cities of Europe, with their "squalid alleys and festering slums," and in a lesser degree to one or two cities of the eastern United States.

Yet, surprising as the statement may seem to some, new cities like Denver have a housing problem of their own; not, it is true, so urgent as the problem presented in cities like London, Paris, or New York, but of unquestionable significance to the public health.

A recent survey by the Social Service Department of the Iliff School of Theology, working in co-operation with the Denver City Health Department, discloses facts which may be new, and should be scarcely welcome, to many inhabitants of Denver and the State. Some of these facts were recently brought before the Denver City Federation by the Rev. H. F. Rall.

The sections covered by the inquiry were the flat low-lying lands along Platte River and Cherry Creek. They include in the one instance the "squatter" properties and the "jungles" (inhabited largely by Italians); and in the other a part of the distinctively Jewish quarter of the city. In the first section the parents of 60 per cent of the families are foreign born. In the second section the corresponding percentage is 72.

The problem is not one of crowded and insanitary city tenements. It is rather one of drainage, sewage disposal, garbage disposal, and the like. Both districts are subject to overflow by river water, and as a consequence a large proportion of the cellars is reported as being wet or even containing standing water. In the first district especially, the lessening value of the properties abolishes incentive to repairs and improvements. In many instances the garbage is simply thrown out. Sanitation is far from improved by the presence of large numbers of domestic animals. The city regulations as to the removal of manure, and as to the provision of tight boxes or cans for manure and garbage, are almost completely ignored. With such ample provision for the breeding of the domestic fly, the much advertised "Swat the Fly" campaign must prove vain and delusive.

In the districts examined there were 154 water closets and 190 privies with vaults. About one-half of the former were dirty or filthy, and less than half were in good repair. Over one-fourth of the privy vaults were full or nearly so, and in twenty-one instances the contents leached into the surrounding soil.

In one place described, the home of a Russian Jew peddler, within sight of the city hall, the plaster of one room had fallen down and had been left with other rubbish. The stable, adjoining the windows of two rooms, was also in bad repair, and the liquid from the manure leached out into the yard. Garbage was strewn over the back yard.

The epidemiologic importance of the existence of breeding places for minute forms of life, both macroscopic and microscopic, is being increasingly recognized. In words used by Mr. Rall at the conclusion of his statement, "we must pay attention to our back yards as well as to our boulevards, and to the poor sections as well as to the fine suburbs and business center." And there may be other matters even "more vital than food inspection and labels and the building of contagious disease hospitals."

Original Articles

THE VOMITING OF INFANTS.*

HOWARD P. KIRTLEY, M.D. SALT LAKE CITY, UTAH.

Among the distressing annoyances that the nursling frequently offers to our consideration is the rejection of its food from the stomach. When not serious to life, but becoming steady, regular and habitual, this is a source of dismay to the mother, misery to the laundress and despair to the doctor. It may be granted that the causes of the serious types may be found and measures taken for their correction; search of more or less diligence reveals the origin of the difficulty, and when that is promptly found it is a matter of satisfaction to proceed with the treatment. However, it is when presented with a mild case of mere regurgitation that our troubles really begin. We offer suggestions to the mother as to her diet and her exercise, and for the help of the bottle-feeder we play with percentages in the formula; add this or cut that ingredient until the prescription is actually quite battle-scarred, and, too, we can hear the tears in mother's voice over the telephone when she tells us that the baby is "still spitting up". About this exasperating stage in the action we have an inspiration and rush to the library and run an eager, even frantic, finger up and down the index of our favorite work. And here we are confronted with the unhappy fact that that otherwise especially helpful book is lacking in a systematic epitome of this thing that is bothering us. We read that the vomiting may be due to this or to that—and at the bottom there is a line to the effect that further consideration will be found on various pages given over to the especial disorder with which the vomiting is associated.

May I remind you of the four varieties of vomiting usually met with among babies:

1. Regurgitation—Which is an easy return of the milk from the stomach, noticed

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

especially among the breast fed, usually under 3 months of age, and appears shortly after nursing, frequently with a small eructation of swallowed air.

2. Real Vomiting—With some evidence of discomfort on the part of the baby. This is due to irritation from the food and to congested mucous membranes; occurs from thirty minutes to an hour after nursing; is accompanied by the eructation of gas from decomposition of the food, contains curds and mucus, or cheesy masses, and is often sour smelling from the content of gastric juice.

3. Projectile, as seen in certain cases of cyclic vomiting, and especially in the presence of cerebral tumor.

4. Rumination, fortunately rare but singularly interesting when it is seen.

I should also like to recall to your minds the four essential causes of the return of food from the infant's stomach:

I. Mechanical;
II. Intoxicative;
III. Nervous;
IV. Dietetic.

I. Of the mechanical causes we have:

Stenosis or spasm at the pylorus, which Koplik divides into (a) pure spasm, (b) spasm with a relative stenosis, and (c) genuine hypertrophic stenosis.[1]

Stenosis or other malformation elsewhere in the stomach, especially at the cardiac orifice, or in the esophagus.

Dilated stomach.

Ulcer of the duodenum, which in babies Holt[2] finds oftenest at from six weeks to five months, and accompanied by collapse and hemorrhage either vomited, concealed, or by rectum. In order to make a diagnosis he recommends the passage of the duodenal catheter of Hess—but for the treatment he is hopelessly pessimistic.

Intussusception and volvulus;

Foreign bodies swallowed;

Tight bands about the baby's abdomen;

Too much food.

II. Of the intoxicative causes we have:

The exanthematous fevers; meningitis—fortunately rare in infants; pneumonia; appendicitis; peritonitis; nephritis; malaria; malnutrition, and acute acid intoxication.

These first two classes of causes usually lend themselves to a rapid and satisfactory diagnosis. For example, in pyloric stenosis the vomiting is characteristic; it appears when the baby is from three days to a week old, occurs promptly after nursing—often when he is still at the breast; is forcible—often shot out of the mouth for four or five feet—and in large amount. While usually after every feeding, still it may come after an interval of one or more feedings, and then the amount is excessive, although not to the total of all the quantity nursed, for, as you remember, water, sugar, dextrin and peptone are absorbed in appreciable amounts directly through the stomach wall. There is neither pain, fever, nor constitutional disturbance, and the baby is hungry at once. In a few days the vomiting is persistent and emaciation is rapid, with no stools and very little urine. Peristaltic waves can of course be seen, but the tumor mass may be very difficult to feel. The instrument of precision in these cases is the duodenal catheter apparatus; we can feed a measured quantity and withdraw what we are able to in three hours—say of barley gruel or skimmed milk diluted with a cereal decoction. The three-hour interval should be enough if Pisek and Lewald's[3] conclusions are correct, that the normal infantile stomach empties itself in one hour.

Certainly our knowledge of these conditions has recently been very much enhanced by the catheter, the bismuth meal and the skiagraphic machine.

Swallowed bodies may be decidedly serious or merely aggravating until recovered. I recently saw a youngster of 16 months who had caused the family and myself much anxiety for a year and had been fed with unusual carefulness. On a hot day he become suddenly sick with vomiting, marked listlessness, and green diarrheic stools. There were no physical findings at all. He was moderately sick for five days, when the father triumphantly brought me a quartzite pebble the size of the end of one's thumb and weighing 79 grains, which had been discovered in the stool. Where the baby got it or how it passed the pharyngeal ring, are questions now filed with the family mysteries.

The literature of acute acid intoxication was recently reviewed by McCleave,[4] who says that this condition is relatively common at the weaning period and is always attended with vomiting, usually of large amounts of fluid and accompanied by great thirst, mild diarrhea of green or gray, badly smelling stools, followed by constipation rapid heart and chest action, flushed, dusky face, low temperature, acetonuria and marked prostration. The cases that do not die recover in from two to eight days—and in his experience, recovery is the rule. In the discussion of this paper, Zahorsky calls attention to the large liver usually found in these cases, and Snyder reports cases in the South with a mortality of 80 per cent. This condition differs from cyclic vomiting and should not be confused with it, in spite of the acetonuria. Perhaps it may be due to the absorption of unchanged proteid, as suggested by Vaughan.[5]

III. The nervous causes include:

Fright; hysteria; reflex irritation as from the pharynx, the teeth, worms, or cough; tumor of the brain; neurotic or cyclic vomiting, and simple habit, especially induced by over anxiety in zealous and fidgetty relatives.

Of the nervous causes, the recurrent or cyclic type is the one we hear the most about and see the oftenest in the so-called "higher walks" of our social life. The recent literature contains frequent reference to this interesting disorder. The diagnosis rests on the periodic attacks of vomiting, beginning oftenest before the third year. They vary considerably in their severity and in the length of the intervals. There is rarely nausea, but there are constipation, secondary anemia and acetonuria; and it is the rule to see a rapid restoration to health after subsidence of the vomiting.

There are many theories as to the underlying origin, such as that it is—

1. Analogous to migraine in adults;
2. A manifestation of acute acid intoxication;
3. According to Zade,[7] "the result of psychogenic upset of carbohydrate metabolism plus irritation of the vomiting center, i. e., the first cause is of mental or emotional nature;
4. A symptom of irritation somewhere in the body as in the tonsils or in other adenoid tissue;
5. A matter of anaphylactic shock;
6. Inasmuch as cases are not reported after the age of 13 years, may there not be some relation to the thymus gland?

Underhill and Steele[6] have recently found lactic acid in the urine in a reported case.

IV. Among the dietetic causes we find:

1. Too frequent feeding;
2. Too much food;
3. Too strong food.

The food may be too strong in any one of the principal elements:

Sugar or other carbohydrate giving rise to fermentation and acute indigestion, and if long continued, leading into the "Mehlnährschaden" of Langstein;

Casein, which may lead into proteid poisoning and an acid intoxication; or

Fat, which is a common cause of vomiting and sometimes accompanied by the famous ammoniacal diaper and the weight disturbance or "Milchnährschaden" of Czerny.

The characteristics of the material vomited in these strong-food cases are as follows:

(a) Carbohydrate: The vomitus is watery and sour and acid to litmus. The accompanying stool is also acid, even bubbly, floats in water and free starch may be found with a little iodine.

(b) Proteid: The vomitus is cheesy, and the stool contains tough curds.

(c) Fat: Creamy vomitus, and the stools have soft curds, which may be soapy, dry or clay-like, even oily, and they sink in water.

In studying the carbohydrate metabolism, Frank and Stolte[8] have found in the "Mehlnährschaden" cases an increase in the water and a decrease in the dry substance of the liver. This means probably an increase of the water in all the tissues and consequently a general lowering of the baby's resistance. In the Orphans' Home in Salt Lake City, which houses from seventy-five to one hundred youngsters, it is the experience that the large, fat, bouncing babies brought in from a diet of condensed milk (usually the highly sweetened variety) look like advertising specimens; but when attacked by even mild infections they withstand them badly, or unfortunately sometimes not at all.

The treatment of the vomiting follows the diagnosis.

I. Mechanical causes require mechanical methods. Malformations may yield to bougies and catheters; these may be tried for a short time, and the mild cases of pyloric closure may yield to gavage, but if the baby is traveling down hill too fast, a posterior gastro-enterostomy promptly done offers the only hope. The mortality is still high, but many of the cases operated upon have been nearly moribund. Richter reports[9] a death rate of 13 per cent, and Downes[10] one of 32 per cent. Holt[11] says that about 50 per cent recover without operation.

A dilated stomach often yields to one or two irrigations of warm boric or salt solution.

For the youngster who gets too much food, simply lengthening the nursing interval is generally efficient. Finkelstein advises a four-hour wait between feedings—hard to do sometimes among the breast fed, since the mother finds herself unable to withstand the pleadings of her "starving baby." It is often difficult to persuade mothers of normal babies that the business of nursing should be managed like a railroad. There seems to be a widespread notion that a divine instinct in the little animal teaches him the proper hour and the adequate amount of food for his needs. However, mothers usually find themselves with better behaved babies if they follow the clock. And a tight flannel band will not ward off a "big stomach," but will too often lead to the loss of part of many feedings.

II. The intoxicative types are, of course, handled according to the underlying condition.

For acute acid intoxication we may give hypodermically a 2 per cent solution of sodium bicarbonate and 8 per cent glucose by rectum in emergency. The bicarbonate will probably lead to necrosis of the skin and sloughing, and the "corn syrup," which is largely commercial glucose, contains too much dextrin to be safe. The pure glucose should be used. In the interval, free catharsis and large doses of soda by mouth or by rectum, if the vomiting prevents, are the measures of choice. Any source of irritation should of course be removed, for example, adenoids. The diet should be made up of low fat percentages and cereal decoctions. Orange juice or other citrus fruit juices are valuable for the potassium citrate they contain. The citrate is altered to carbonate in the body and helps to neutralize the acidity of the tissues. For older children, crackers, rice and other cereals are good.

III. Of the nervous types, the recurrent form is perhaps the hardest to handle, and while it is doubtful whether diet in the periods of calm has any influence, cow's milk should be eliminated and also the sweets. If the child's palate requires it, saccharin may be used as a sweetening agent. During the attack an alkali is essential, say the bicarbonate of soda, 5 grains in 8 ounces of water by mouth or by rectum. The epoch-marking work of Martin Fischer offers a splendid basis for efficient treatment of the acidosis, and his solution should be promptly started by rectum. Abt recommends ice cold chloroform water by mouth; and atropine to the physiological limit has been suggested.

McClure[12] reports a case of nervous vomiting—a baby 6½ months old, with a head-rolling habit and sucking motion of the jaws after vomiting—which he cured with a semi-solid diet made of farina 1 part, whole milk 6 parts, boiled one hour and fed from a spoon.

Rosenhaupt[13] recommends anesthesin in small doses before feeding, in pure nervous cases.

IV. The dietetic cases naturally divide themselves into the breast-fed and the bottle-fed.

Among the breast-fed the first step is to insist upon regularity in feeding—not oftener than every three hours, and not more than twenty minutes at a time; and once at night is ample for the baby and a source of greater comfort to the mother.

It is a fact that vomiting is more common among infants who are naturally fed, and the beginning of this symptom is often the cause of such a nervous reaction on the mother that the milk actually fails. Lowenburg[14] says that the milk may deteriorate and the baby begin to regurgitate and pass green curdy stools because of a psychic element—a fear—in the nervous make-up of the mother. He saves these breasts by suggestion treatment and reports cases where the baby thrives and content supervenes, even when the bottle along with its attendant difficulties was imminent.

We can examine samples of the breast secretion and make suggestions like these:

To increase the total quantity increase the total fluid intake and encourage the mother to believe that she will nurse her baby in spite of the way things seem to be going. The beers and the malt extracts apparently are valuable only as they stimulate the appetite and increase the liquid ingested. I have seen cocoa and boiled beets help in this matter.

To increase the total solids, feed the baby at short intervals, and limit the mother's exercise and decrease the liquids she imbibes. "Per contra," if the milk has too high a density, lengthen the nursing interval, increase the exercise and the fluid intake. This will help rapidly to eliminate the tough curd from the vomitus and the stool.

To increase the fat we give the mother more fats of an easily assimilable form, such as olive oil and butter, and allow plenty of red meat.

It has been said that the best way to modify cow's milk is to pass it through the mother. Certainly you have all seen a gallon of milk a day — or even two quarts — drunk by the mother, save the baby from the bottle.

The best stimulation for the breast milk, however — better than all of them — is the infant's sucking. It influences the character as well as the amount of flow.

Our German friends say that all milk from the breast is good and fail to find differences among different women or at different times, say during menstruation.[15]

Among the artificially fed babies, given a formula that we feel is suitable, if there is a steady gain in weight but the vomiting is the only symptom, we may do as follows:

1. Boil the whole prescription five minutes, instead of feeding raw milk slightly warmed. This is not done with the idea of sterilizing the milk, but it does make a finer and more easily assimilable curd, as proved by Brennemann[16]; and Lane-Claypon[17] has shown that infants really develop slightly better if the milk is boiled. (Confirmed by Coit[18] with an experience of 6,000 bottle babies.)

2. We may change the usual lime water to citrate of soda, 2 grains to the ounce, as suggested by Poynton. Everyone who has used this has noticed that the curd vomited by the baby is smoother and finer than under the influence of the lime water. Bosworth and Van Slyke[19] are the first to offer a chemical explanation for this fact. They say that when milk curdles, the calcium caseinate of the milk in the presence of rennin is changed to calcium paracaseinate, which is insoluble. With sodium citrate, the rennin causes the formation of a double compound of calcium, sodium paracaseinate. Now, sodium paracaseinate is very soluble and the calcium citrate formed in the reaction is slightly soluble even in cold water. Therefore, there is left as the curd a relatively smaller amount of insoluble calcium paracaseinate.

3. We can also use the bicarbonate or the benzoate of soda, 20 grains of the former and ½ to 2 grains of the latter.

Of course any particular ingredient that is the cause of the difficulty should be removed, and it is better to take it entirely out of the formula and gradually work back than gradually to eliminate it.

Certain French authors advise for continued vomiting condensed milk with a high sugar content, which might be of value where the baby has an intolerance for fat.

If the baby has an allergy to milk (anaphylactic shock?) we may be forced to egg-water or even one of the cereal proprietaries. One such (Italian) baby I know of was put on the white of one egg in a glass of water at 5 months, and stringent orders were left to give absolutely nothing else until the doctor advised the change. The doctor tells me that he happened to go away and did not see any of the family until thirteen months later. The baby was now a sturdy young man of thirty-five pounds—and was still on his ration of albumen water!

For the weight disturbance of Czerny and the ammoniacal diaper, skimmed milk is the accepted diet; and as regards the malt sugar, which seems the best, I use the "Kepler" preparation of Burroughs-Wellcome, or "Digesto," which has the advantage of being considerably cheaper.

For the Mehlnährschaden cases, the "albumen milk" (Eiweissmilch) of Finkelstein is incomparable

In conclusion, I wish merely to emphasize this fact—that whether the baby is receiving its nourishment naturally or artifically, its vomiting, at first apparently insignificant, should be regarded not as an indication of slight dyspepsia, but as a possible indication of serious disturbance which might later, without attention, deprive the baby of its life.

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DISCUSSION.

Frank P. Gengenbach, Denver: This is another one of those papers in which there is not much to discuss except to approve of what the author of the paper has said. In my own experience and in the greatest number of cases that come under my observation the most likely offending element in the milk is fat, and measures should be taken to overcome that element. It is my practice to first limit the amount of nursing, for since we know the first milk secreted from the breast is weakest in fat, we try to give the baby only the first part, and if there is very much left we remove what is left with the breast pump, and in that way the child has a comparatively low fat breast milk. If that is not sufficient, if the child does not get nourishment in that way, we are perforce obliged to give a longer feeding. We then make the milk weaker in fat by diluting it. This may be done by giving a little barley water before nursing, or by feeding water as the child nurses. I do this frequently by making up a sweetened solution, using a little bit of saccharin to sweeten the water, and feed it with a medicine dropper while the child nurses at the breast. It can take the dropper in the corner of the mouth and take the water while it is nursing. Where the child is inclined to indigestion with fat or proteid, we can put in this solution certain artificial digestants, like pepsin, caroid, etc., or as the doctor suggested, we may put in sodium citrate. Sodium citrate and the other agents will mix with the milk as it is swallowed, and in that way I find the child will tolerate breast milk better. In artificial feeding we have to use fat free milk or one that is low in fat. Where there is intolerance due to starch, we can get rid of that by first dextrinizing the starch.

J. W. Amesse, Denver: There is one factor important enough to receive consideration which neither the essayist nor Dr. Gengenbach mentioned. This is the character of the drinking water which we give babies between feedings. I was astonished to find during the past summer, in Denver, that in spite of the excellent water supply, a number of babies were unable to drink it as it came from the mains, without gastric disturbances. On investigating we found that the excessive rains in the mountains and foothills had washed into the Platte River large quantities of organic material which, becoming dissolved in part, passed through the filters and contaminated more or less the water supply of Denver. Boiling the water served only to accentuate the bad taste and odor, and was sufficient in a number of cases to produce nausea and vomiting. Simply changing to bottled table waters served in a number of instances to correct this trouble and to me proved conclusively that the drinking water was at fault.

With reference to pyloric stenosis, it is evidently more common than we are led to believe. During a recent visit to the Babies' Hospital in New York, I noted a half dozen cases of pyloric stenosis entering the hospital within a few days, and later, at Mt. Sinai, three babies were presented at the clinic with the same affection.

As the prognosis depends wholly upon early diagnosis, it is incumbent upon us to bear this congenital disorder in mind when investigating cases of projectile vomiting during the early years of life.

C. A. Ferris, Denver: I think the papers read before our Society are nothing if not practical, and it is the essential, practical points which we should attempt to take home with us.

I wish to impress upon the minds of all those here the great importance of the paper which Dr. Kirtley has presented to us. What I wish particularly to impress upon the general practitioner is the important point that when he has a case of uncontrollable vomiting in an infant, he should not be afraid to say to the parents that he does not know just exactly what the trouble is, but should insist upon calling in some of the men who have made a special study of this subject, and are capable and have the laboratory facilities and time and thought to find out from a scientific standpoint what is the matter with the infant. If you will keep that thought in mind you will save thousands of babies in the future where you are only saving hundreds now.

Howard P. Kirtley, Salt Lake City, Utah, (closing): I wish to thank the members of the profession of Colorado for the kind way in which they have received my small contribution. In Utah we do not have very much trouble with babies because the great majority of them are breast fed. When we do have trouble, we have a lot of it.

I was very glad to have Dr. Amesse call our attention to the drinking water as a possible cause of vomiting. Frankly, I never thought of it. We have a fine water supply in Salt Lake City.

One of the doctors from southern Utah asked me what I was going to talk about at this meeting, and I told him. He had a baby down his way that was not doing very well. It was vomiting and seemed to have a distaste for milk. He recommended that the child be given the white of one egg in a glass of water, this to be given the baby every four hours and nothing else until he saw the child and the parent again. The baby then was 5 months old. In the meantime, the doctor went abroad, and when he came back the baby was 18 months old. He saw the baby drinking out of a bottle and it was in splendid condition. Some one remarked that it was the egg and water he gave it. However, to make a long story short, the baby weighs thirty-five pounds, and the doctor wants to know what made him grow.

INFANT FEEDING BY SIMPLE DILUTIONS.*

By G. M. ANDERSON, A.M., M.D., DENVER.

In devising a substitute plan for infant feeding we must first consider what is a good food mixture. It must be well balanced in the main food elements. It must be capable of being prepared in the home and by persons of average and often by less than average intelligence. It must be capable of easy modification. Its composition need not approximate breast milk nor necessarily resemble it. This I want to emphasize. Here is where we have failed; trying to imitate breast milk. It cannot be done.

A food which fulfills these conditions is cow's milk diluted with water to which is added maltose-dextrin.

Dilutions for Well Babies.

At the "State Home," Denver, for the first four weeks of infancy we use one-third whole milk and two thirds water plus five per cent maltose dextrin. We give two to three ounces per feeding.

For a baby four weeks to six months old we use half whole milk and half water plus 6 per cent maltose-dextrin; giving four to six ounces per feeding.

For one six to nine months of age we use two-thirds whole milk and one-third water plus six to eight per cent maltose-dextrin; giving six to eight ounces per feeding. Cereal gruels are often desirable additions to the milk.

For those nine months old and upwards we use whole milk. A carbohydrate in the form of flour ball can be used at this age with good results.

We employed the four-hour feeding interval and found it applicable to all except three very puny infants.

It has been definitely proven by many workers that cow's milk does not leave a baby's stomach under three hours. The baby's stomach should have some rest between digestive acts, as does the adult's. A normal infant should therefore not be fed oftener than every four hours.

We prefer maltose-dextrin for the sugar and think our results prove its superiority.

The work of Leopold, Kendall and others leads us to believe that maltose causes less fermentation than either cane or milk sugar. It causes more rapid gain in weight; it is more easily and rapidly assimilated. It is far superior to the others in diarrheal troubles. If you will not use maltose-dextrin, use cane sugar. Cane sugar is far superior to milk sugar—so stated Jacobi thirty years ago. I found maltose-dextrin used exclusively in six of our best eastern children's hospitals just visited.

Of course I realize that I have only roughly gotten at the proper amount of milk for the several ages. The more accurate method is to use the energy quotient or caloric standard, though Dr. Holt lately stated that it must not be regarded as entirely reliable. A baby needs one hundred calories per kilogram of body weight (45 calories to the pound). An ounce of milk equals twenty-one calories. A very useful standard is one and one-half ounces of whole milk to the pound weight and one ounce of some sugar, preferably maltose-dextrin, for the twenty-four hours' food. Certainly there are no set rules that will fit every infant. The best guide is to weigh the baby twice or three times a week and feed accordingly with an eye to digestive disorders.

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In Colorado I believe there is no necessity to use pasteurized or sterilized milk in well babies. A good herd milk, produced under good barn and milking conditions, rapidly cooled and properly bottled and delivered within six hours will give good results. The State Home has an excellent herd, a good milk house and cooling apparatus, and conducts the milking with the strictest cleanliness. Pasteurization, to my mind, is a distinct menace. It makes us feel that we have something that we have not. Relying upon its efficacy to make milk harmless, bad milk is very often used. The germs that should live to defend the milk are killed and the real bad ones are never killed, hence the milk spoils much more readily than raw milk, being robbed of its protecting organisms. If your milk is bad, boil it.

Nutritional Disorders Due to Food.

The present tendency is to attribute more importance to food itself as the disturbing factor in these disorders and an almost insignificant rôle to bacteria, except in ileocolitis. This change is mainly due to the epoch-making work of Czerny, Finkelstein, and their pupils. They have presented an overwhelming array of evidence that seems to prove quite conclusively that intoxications such as cholera-infantum, summer complaints, and their prodromal stages, dyspepsia and indigestion, are purely due to food (food injuries) and not due to bacteria. To them belongs the credit of placing infant feeding upon a rational scientific basis by clearly defining the rôle that each food element plays in the production of disorders of nutrition and showing that these disorders were metabolic and digestive and not bacterial. Finkelstein gives us the following classification:

I. Disturbance of balance (malnutrition).
II. Dyspepsia.
III. Decomposition (marasmus).
IV. Intoxication (cholera infantum).

Disturbance of Balance (Fat Constipation).

This is a disturbance of nutrition caused by giving a food beyond the infant's limit of tolerance for fat. It is clinically characterized by constipation, stationary weight, pallor and fretfulness.

The stools are hard, dry, pale and offensive. The chief symptoms are stationary weight and constipation. Fat is the disturbing element in this disorder. The infant's tolerance for sugar and proteid is good. Therefore the treatment consists in the reduction of the amount of fat in the food. In mild cases simply reducing the amount of whole milk will be sufficient. In the more severe ones skimmed milk must be substituted for the whole milk. The percentage of maltose-dextrin may remain the same. Maltose is the best sugar because it is laxative and causes a gain in weight. No drugs are to be given for the constipation.

Dyspepsia (Fatty Diarrhea).

A nutritional disorder characterized by vomiting, diarrhea and slight elevation of temperature. The baby is restless, sleeps badly, cries much and has considerable loss of tissue. The stools are passed from four to six times a day. They are greenish, contain curds and mucus, and have an odor of fermentation. If the sugar is at fault, the stools are sour, frothy, foamy and scalding to the buttocks. If the fat is the chief disturber, the stools are cheesy, whitish gray, greasy and slimy. There is much flatulence and some fever. The weight may be stationary or even show a gain. Sugar and fat are both disturbers in this disorder.

Milk sugar is the worst offender, cane next and maltose least. Fermentation of sugar of milk is a great factor in paving the way for disturbances from fat. Proteid is exonerated entirely. The best treatment is to give breast milk; the younger the infant the stronger is the indication. But if the breast milk cannot be had and the disorder is still severe, all food should be withdrawn for twelve hours and hourly doses of 1/10-gr. of calomel given. Then resume feeding by giving whole boiled milk well diluted with water, plain or barley, to which is added very little maltose. Weak tea or water must be given freely during the period of therapeutic starvation.

In severe cases use boiled skimmed milk and water. Boil the milk three minutes. As improvement occurs, gradually replace the skimmed milk with whole milk and bring up the amount of maltose to the usual quantity.

Decomposition (Marasmus).

A chronic state of malnutrition in infants, characterized by inability to assimilate the food given and loss in weight; by sub-normal temperature; by emaciation and greatly lowered resistance.

Upon examination the baby appears pale; the tissues are flabby; the skin is wrinkled; the cheeks are sunken and the subcutaneous fat is absent over the entire body. There is a steady loss of weight. Hunger is a prominent symptom manifested by the baby gnawing its fingers and hands. Colic, vomiting and diarrhea are not features of this disorder.

The great problem is to give enough food to maintain the weight, yet not enough to cause gastro-intestinal disturbances.

If to combat this loss of weight the food be increased beyond the infant's tolerance, the baby will react with a fall in weight frequently unaccompanied by gastro-intestinal symptoms. This reaction (the more food given the greater the loss of weight) is called by Finkelstein the "paradoxic reaction."

In severe cases the border of tolerance is below that for the amount of food necessary to sustain life. These are bad cases. The outlook is not encouraging.

The tolerance for fat is low; and sugar often offends also. The best treatment is breast milk. It must be given very cautiously at first and increased very gradually. An ounce at a feeding is enough to begin with; being drawn from the breast and measured amounts given every two hours. If breast milk cannot be had, the best and only artificial food is albumen milk ("Eiweiss Milch"). We must have food with the fat and the sugar reduced to a minimum. This means a protein diet.

Albumen milk answers to this need. The old method of preparation was a hindrance to its use, but now there is a much easier method. To one pint of fat-free buttermilk, add one pint of warm water, containing 10 grams of casein powder.

If albumen milk is wanted richer in fat, use buttermilk from whole milk. Maltose from 1 to 3 per cent is added to this albumen milk and gradually increased to 6 per cent.

Finkelstein and Meyer advise that we start with a tablespoonful every two hours, rapidly increasing the amount and lengthening the interval until the infant is fed three ounces to the pound weight every four hours. This milk has given brilliant results in the hands of a great many. Abt states that it is next to breast milk in value in this disorder. I want to emphasize that these babies must not be therapeutically starved. Food must not be withheld twelve to twenty-four hours as in other disorders. Abt believes that there is a great abuse of cathartics in these cases; that this is not simply a disease of the gastro-intestinal tract but one to be compared with uremia.

Intoxication (Summer Complaint, Summer Diarrhea).

An acute affection characterized by sudden onset, high temperature, vomiting, great loss of weight, diarrhea, collapse, deep, pauseless breathing; occurring most frequently in summer months and in artificially fed babies.

No infant develops intoxication without previously having undergone some digestive disturbance. The resemblance of these cases to infection naturally led to the view that they were due either to bacterial infection of the intestines or to absorption of bacterial toxins from spoiled milk. Neither view seems tenable any longer. The response to complete withdrawal of food is too prompt. No pathological lesions are found to account for such grave symptoms, and these intoxications occur equally well on aseptic or sterile food, as the work of the Germans proves.

Finkelstein and Meyer proved conclusively that the milk sugar of the food can of itself produce a severe intoxication. So can any of the other sugars. Complete withdrawal of the sugar hastens recovery. Fat can produce such toxic symptoms only after sugar has acted harmfully.

All of the food elements may be concerned. The exact nature of the intoxication is unknown, yet nearly all agree that it is largely metabolic, a food poisoning. Finkelstein terms it a "metabolic bankruptcy," probably in the nature of an acidosis.

The exact rôle heat plays has led to much speculation and investigation. It is certain that high temperature alone is not the cause, as the mortality of summer gastro-intestinal diseases is practically the same all over the United States with the exception of a few Pacific Coast cities (see Zarhorsky's publications. Certainly it is not due to bacteria or their products in milk primarily, for in Europe the practice has been for years to feed infants only boiled milk, yet intoxications are common.

One English worker purchased cheap and bad milk from the small shops in London and fed it, yet had no bad results. Bacteria in food are a minor cause. Heat most likely acts first, by lowering the infant's tolerance of all food; second, by lowering the baby's digestive ability; third by direct action as "heat stroke" on the nervous and circulatory systems.

Treatment. At the very outset of the intoxication there are two distinct indications; first, stop food; second, supply water. It is rarely necessary to withhold food longer than twenty-four to thirty-six hours. Cathartics and colonic flushings are not necessary. Dr. Grulee never uses cathartics. Hydrotherapy is useful, also stimulants. In pure intoxications disintoxication has taken place within thirty-six hours and the change is as striking as the crisis in pneumonia.

Now food is indicated, cautiously administered, small in quantity and given probably every two hours. Breast milk is the best and some must have it to live. The offending food elements in this condition are, in their order of virulence, sugar, fats, salts and protein.

A food consisting chiefly of protein, therefore, meets our indication best. Dr. Grulee used curds from skimmed milk rubbed up in arrow-root water or five per cent gelatine. Later he replaces half of the curds of skimmed milk with those from whole milk.

Buttermilk is advised by many. The pediatric literature is abundant with reports from good observers that albumen milk gives the best results; one and one-half ounces to the pound weight. Feer in his new text book says that albumen milk is better in intoxications than breast milk. Abt, Koplik and Beck state that it is next to breast milk in value in intoxications. Beck reports favorably on 300 cases tried out.

Brennemann's work on boiled milk shows that boiling the milk is of great value in all these disorders. The curds are finer and softer. On boiling the milk, curds will cease to occur in the stools. Boiling milk from three to five minutes does not injure it as a food.

From 6,000 cases fed on raw and boiled milk Coit found that boiling milk two to five minutes does not injure it as a good food; that milk from the same species is better not boiled; but that milk from a different species is better boiled. While much is left for future research to clarify, Finkelstein's simple milk and water dilution method has been of the greatest practical value to those of us who have made its principles the basis of our feeding methods.

Our observations on this method were obtained at the State Home for Neglected and Dependent Children, at Denver, Colorado. The period covered was from September, 1912, to September, 1914. The number of babies cared for was ninety-six. The daily average present for the two years was fourteen. The total number of deaths for the two years was eight; of gastro-intestinal nutritional fatalities three.

With fewer babies present during the preceding two years, there had been a total of thirty-six deaths; twenty-four of them gastro-intestinal nutritional fatalities.

During the period of two years at the State Home we found only two babies who could not be fed by the simple milk and water method. We used no proprietary foods.

I beg to acknowledge my indebtedness to Mr. C. A. Donnelly, the Superintendent of the Home, and to the nurse in charge of the babies for many courtesies. I also want to acknowledge my obligations to that excellent teacher, Dr. Isaac Abt, to Dr. Grulee, who is the author of the only book in English on this method, and to Dr. Brennemann, for their exceeding kindness to me during my recent work under them.

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DISCUSSION.

R. T. Ramsey, Denver: Mr. President: A paper on infant feeding that contains so much recent knowledge of the subject is a very valuable one to my mind, and worthy of our careful attention. I might be classed as a conservative on this subject of infant feeding, but I believe it is an open question yet and our minds should be free to accept that which is good. Artificial feeding of infants continues to be the most important and most unsettled question in pediatrics.

The subject of infant feeding is receiving the scientific investigation it so much needs and deserves, and many important changes in our knowledge of the subject have been made, especially in the last two or three years. Having adopted the percentage method many years ago in the feeding of the average case, and having usually had marked success with it, I am justified in making with some caution such radical changes as the Finkelstein method advances. I realize that the general tendency among pediatricians is to supplant the old percentage method with a simpler and more easily mastered one, and yet such a man as Floyd Crandall says in an article this year in the American Journal of Diseases of Children that the subject is so unsettled that the average man will do well to hold on to any method that he understands well and has thoroughly tried and found usually giving good results. I believe there is a great deal of truth and sound advice in that statement. It has been my experience that failure in the use of almost any method is largely due to lack of thorough knowledge of the subject and to non-observance of little details necessary for success. I still believe the percentage method has great value in it, as modified by the recognition that the fats usually cause more disturbance than the proteids, that the form of carbohydrates used in some cases militates against successful issue, and that the caloric requirement should always be taken into consideration. Thorough and painstaking study of each case should be undertaken, with a competent person to handle and prepare the milk, a definite knowledge of the composition of the daily supply of milk as to its cleanliness and as to its fat content, etc. These basic principles will go a long way in insuring success in any case. I believe the subject of artificial feeding of infants will ever remain a difficult one, for nature has provided very definitely only one food suitable for the baby's nourishment and growth, and the physician who succeeds in furnishing an artificial supply is the man, in my opinion, who will earnestly and persistently—yes, and enthusiastically—apply his best energies to the study of the subject, who will be sufficiently interested to enforce in each case every detail required for successful management of these most difficult patients.

There seems to be no recognized method that the profession is willing to generally adopt. Many of the cases we meet with are easily managed by almost any of the well tried schemes, but it is the difficult cases that test the skill and patience of the pediatrician.

H. B. Whitney, Denver: I have been very much interested for the last four or five years in the Finkelstein theory. I wonder if the rest of you have had the same experience that I have had in reading many of the articles that have been translated for us as giving the essential elements of this theory. I have read some of the sentences and paragraphs several times, and then had to confess that I did not clearly understand them. The whole thing seemed so elusive; there appeared to be a great thought somewhere which I could not seem to get hold of, anxious as I was to do so. What was the trouble? Every fresh article I would read with renewed interest, hoping at last to get a clear idea of what appeared to be a new conception of the origin and treatment of the gastro-intestinal affections of infancy. I suppose some of you have seen the last article on the subject in the Archives of Pediatrics, a paper covering 15 pages, and entitled "Finkelstein's Foundations". I read this over with great interest, as doubtless others of you have. On tackling some parts of it a second time, it suddenly occurred to me that the trouble with this, and with similar articles of the sort, lay in the amount of froth which it contained. Is it not possible, I said to myself, that this is a case of a small kernel of truth being covered with a tremendously thick husk? It is certainly true that many men write in that way; they present their ideas to us in such a form, with such a mixture of the practical with the theoretical, that it is difficult to get at the essential idea which was in the mind of the writer. I undertook, therefore, the analysis a day or two ago of a page from this article taken at random in order to see what I could make out of it on this hypothesis. It will take me only a couple of minutes to read this page, and then to give its synopsis:

"Dyspepsia is a stage of endogenous intestinal fermentation, caused by a disproportion between the amount of food and the power of metabolism. That essential regulatory power is lacking which enables the healthy child to maintain the normal composition of the intestinal flora and the normal chemistry of the intestinal contents. Abnormal fermentations gain a foothold, and the presence of these with the consequent effect upon the motor and secretory activity of the intestine gives rise to the symptoms of dyspepsia."

What more are we told there than this: Dyspepsia is an intestinal fermentation, due to overfeeding, in which the intestinal flora and chemismus become abnormal?

The writer then goes on as follows:

"The child is free from symptoms only when the food is well below the energy line. The paradoxical reaction upon the increase of food consists in abnormal stools and abnormal fluctuation of the weight and temperature. The alimentary nature of the gastro-intestinal symptoms is evident from the fact that they show a very close relation to the quantity and quality of the food. Reduction in the amount of the food reduces the severity of the gastro-intestinal symptoms, or causes them to subside altogether.

"The tolerance is reduced for both fat and sugars. The sugars undergo abnormal fermentation somewhat more easily than the fats, and the different sugars act differently, the tolerance for milk and cane sugar being lower than that for maltose or the dextrinated mixtures. Casein here, as in other nutritional disturbances, seems to exert no harmful influence upon the condition.

"According to the particular foodstuff, whose exhibition in a particular case in excess of the tolerance produced the outbreak of the dyspepsia, we may distinguish a fat and a sugar dyspepsia. The sugar dyspepsia shows a greater tendency to elevation in temperature than the fat dyspepsia. There are different degrees of dyspepsia depending on the amount of tolerance.

"Dyspepsia is the introductory stage to severe disturbances of intermediary metabolism. During dyspepsia, along with the diminution in the power which enables the intestine to regulate its flora, there is also a sinking in that power which enables the intestinal wall to so affect the foodstuff that it is harmless during further metabolism. This weakening of the functional efficacy of the intestinal wall is necessary before the severe forms of intestinal disturbance can occur, and without at least a transitory dyspepsia there can be neither decomposition nor intoxication."

Without in any way adding to or subtracting from its meaning, one may translate, so to speak, the foregoing into intelligible language as follows:

"Dyspepsia is an intestinal fermentation, due to overfeeding, in which the intestinal flora and chemismus become abnormal. It is purely a local condition, and its symptoms are shown in the stools, the weight and the temperature. It is caused chiefly by the fats and sugars, and not by casein; cane sugars and milk sugars are more apt to produce it than maltose. We may have, therefore, both a fat and a sugar dyspepsia, the latter being oftenest febrile. Dyspepsia produces not only changes in the intestinal flora and chemismus, but disturbances in metabolism which may result in intoxication."

This sounds more like the old fashioned beliefs to which we have been so long accustomed; and I simply want to show that much of the Finkelstein philosophy is practically a rehash of what we have known for so long a time. "Loss of balance", dyspepsia", "decomposition" or marasmus, and "intoxication" or cholera infantum, are simply phases of gastro-intestinal fermentation and dyspepsia with which we have been long familiar. An old thing is snowed under by such a mass of words that we do not recognize its original and familiar shape.

Before I close, however, I want to say this, that Finkelstein has taught us a great deal, and that I am willing to give him full credit for that. He has shown that alimentary intoxication is metabolic to a large extent, and that it is not due to bacterial infection. Furthermore, he has taught us that fat and sugar are very injurious elements in some cases, and that many of these can be relieved by substituting for the fat and sugar other forms of food. Beyond these facts and their experimental demonstration he has added perhaps but little to our knowledge; and if someone would attempt to present the whole of the so-called Finkelstein theory in a form more digestible, and tending less to the production of cerebral "decomposition", he would perform a real service.

F. P. Gengenbach, Denver: The contributions of Professor Finkelstein are written in a very philosophical style, and on certain points he may not express himself as clearly as some would expect.

With reference to this paper, Dr. Anderson has covered so much ground that we cannot do more than pick out one or two points. There is no question in my mind that for sick babies, as a rule boiled milk is better than raw milk. For well babies raw milk is better than boiled milk, although that is a point that will be disputed by some.

In regard to the experiments that were carried on to prove that boiled milk is better than raw milk, an investigator in Maryland took 150 guinea pigs and fed them on mother's milk; he took another 150 guinea pigs and fed them on boiled cow's milk, another 150 on pasteurized cow's milk, and another 150 on raw cow's milk. He kept track of the weights and also of the mortality, and the results at the end of the first year showed that the guinea pigs fed on mother's milk did the best; that the guinea pigs fed on boiled cow's milk did the next best, those fed on raw cow's milk next and pasteurized cow's milk last. He interbred the guinea pigs from each class and followed them into the next generation, and he found that, in the first place, those that were fed on mother's milk had the largest litters of young pigs. Then came those fed on boiled cow's milk again; then came those that were fed on pasteurized cow's milk, and last those on raw cow's milk. The guinea pigs fed on raw cow's milk had smaller litters of pigs than the other guinea pigs, but he found a plausible explanation in the fact that in the milk he was using from a certain herd, at least one cow was infected with the bacillus abortus. He thought possibly by feeding the guinea pigs on raw cow's milk the bacillus abortus produced the same effect in the guinea pigs as in cows. For practical purposes, there is no question that you can handle ordinary whole milk mixtures much easier, and you can criticise them, if you want from the percentage standpoint, but it seems to me the criticism is not well taken.

For instance, if you start as recommended with one-third mixture, giving practically one and one-third per cent of fat, and one and one-third per cent of proteid, and the same amount of sugar, supplemented with additional sugar, you have some estimate as to the percentages present in the feeding. We find in practice that some babies do very well on condensed milk. They do well on condensed milk because it is mostly sugar and the sugar tolerance in babies is good. They do well because there is also a low fat percentage and a low proteid percentage. Take a mixture of one to nine. This gives one per cent of fat, one per cent of proteid, and six per cent sugar. In mother's milk you have a little over one per cent proteid, about the same as in a one-third whole milk mixture, while in the one-third mixture you get about one per cent fat, the same as in the condensed milk mixture. I am not boosting condensed milk, but I claim there are times when you can get babies to take condensed milk who cannot take other modifications of cow's milk. The real danger in condensed milk is not in putting babies on it temporarily, but in leaving them on it. If they do well temporarily on it, they may be weaned from it to a whole milk mixture, by gradually adding cow's milk to the condensed milk mixture, and replacing the condensed milk by milk, cane or malt sugar.

G. M. Anderson, Denver (Closing): I wish to thank Dr. Ramsey for his remarks. When we learn that a certain thing is good we should stick to it until we get a better one. As to the criticism of Dr. Whitney regarding Dr. Finkelstein's verbosity and efflorescence, that will be arranged for after the war is over. At first I thought Dr. Whitney was not going to give any credit to Finkelstein at all, but finally he admitted the whole thing. Not more than once in a generation does a man arise who so completely revolutionizes accepted ideas as has Finkelstein

in turning our attention from the proteid to the fat as the disturbing element in infant feeding.

With reference to the remarks of Dr. Gengenbach concerning condensed milk, while not generally favoring the use of condensed milk I admit it works beautifully in some of these cases, especially those characterized by vomiting. Of course the reason is that it contains scarcely any fat, but high sugar content and average proteid.

CONGENITAL STENOSIS OF THE PYLORUS.

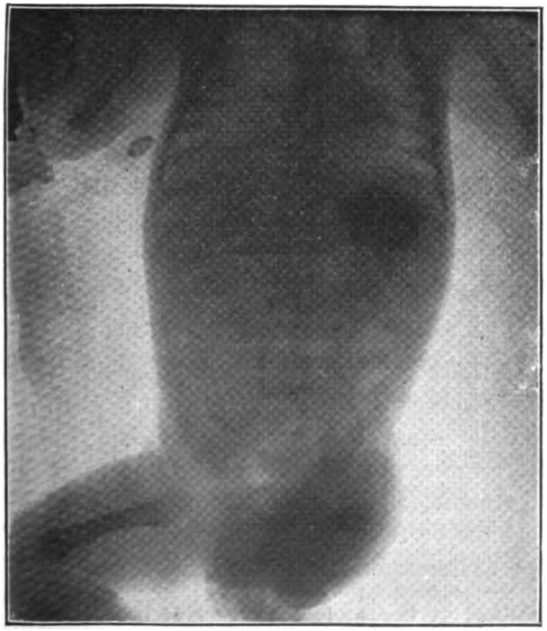
(With Three Skiagraphs.)

F. N. COCHEMS, M.D., and A. J. BENDER, M.D., SALIDA.

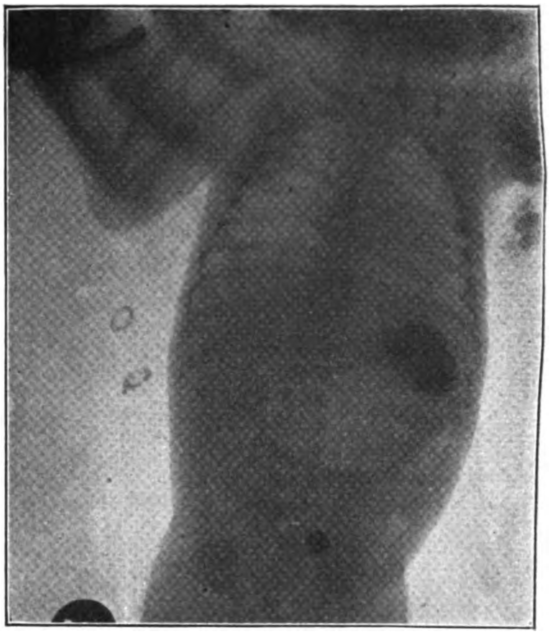
In reporting this case of congenital stenosis of the pylorus in an infant, attention is directed to the value of an early recognition of the true condition in such cases, and to the necessity of instituting prompt surgical measures for the relief of the obstruction.

The essential points to be considered in arriving at a diagnosis are the history, symptoms, physical findings and radiography. Vomiting is always the first symptom and is usually projectile in character, very persistent, coming on from three days to seven weeks after birth and occurring more frequently in breast-fed babies.

The lower abdomen is retracted, while the upper portion is distended and violent visible peristalsis of the stomach may be noticed, and in the region of the pylorus there is often a palpable tumor. Constipation is usually present and emaciation rapidly ensues.



Congenital Stenosis of Pylorus, Fig. 1.

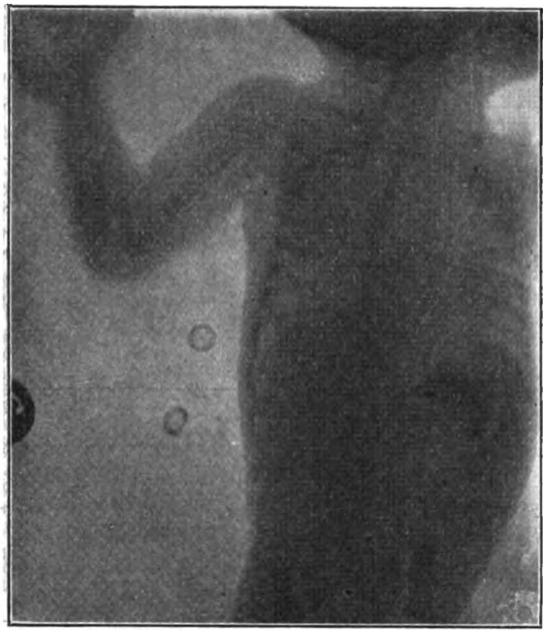


Congenital Stenosis of Pylorus, Fig. 2.

By the administration of bismuth, followed by a series of radiographs, a diagnosis of pyloric occlusion may be confirmed.

Case. Baby M. Boy. Admitted to the Red Cross Hospital on January 21, 1915. Was born on January 1; well developed at birth, weighing nine pounds; breast fed the first eleven days, and apparently did well, except for slight constipation. Ten days before admission to the hospital the child began to vomit soon after each feeding. At this time the family physician was called. He made a diagnosis of indigestion and substituted artificial feeding. Vomiting continued and child began to lose weight. Family history negative.

At **examination** on entrance to the hospital the skin was dry, drawn and intensely jaundiced; eyes sunken, face pinched, emaciation quite pronounced. Lower abdomen retracted, upper portion tense and distended. No tumor palpable and no peristalsis visible in the region of the stomach; pulse, 118; temperature, 99 rectal; respiration, 32. Vomiting occurs soon after any intake of food, and consists of the material taken but no bile. Enema was given with very slight results, material resembling meconium. Milk of bismuth was administered by mouth and a series of radiograms made; one immediately, one two hours and one six hours later. As may be seen by the accompanying figures, the entire amount of bismuth remained in the stomach, none having passed into the intestines. A diagnosis of pyloric obstruction was made and immediate operation advised, but the consent of the parents could not be obtained until the following day.



Congenital Stenosis of Pylorus, Fig. 3.

Operation January 22, the day following entrance to the hospital; ether anesthetic. The child was almost in a state of collapse at the time the operation was begun. The abdomen was opened through a median incision; stomach quite distended. A definite circumscribed round tumor mass about the size of a hazel nut was seen and could be palpated in the pyloric region. The intestines collapsed and emptied. Posterior gastro-enterostomy was performed. Duration of anesthesia, twenty-five minutes.

Post-operative. Rectal feeding immediately and small quantity of liquid by mouth, begun two hours after operation. No vomiting, but shortly after operation suffocation nearly occurred from excessive mucus in the throat. Temperature, 102; pulse, 152—two hours after operation. The child died the following day.

The prognosis in cases of congenital stenosis with tumor is favorable if recognized early and promptly relieved by surgical interference, gastro-enterostomy being the operation of choice. Medical treatment alone in these cases is hazardous, and as pointed out by Holt (4), the risks are death from acute inanition, marasmus and increased susceptibility to intercurrent diseases on account of enfeebled condition.

Dowes[1] reported twenty-two cases and seven deaths. Scudder[2] collected five cases from the literature and reported nine of his own with no deaths. Richter[3] had twenty-two cases with three deaths.

In every case of death reported the child was weak, emaciated, on the verge of collapse and practically moribund at the time of operation.

The microscopical examination of sections taken from cases that have gone to autopsy reveal the presence of a hyperplasia of the circular muscle fibres, the longitudinal muscle remaining practically unchanged. There is also a hypertrophy of the mucosa in the region of the pylorus.

The comments made in this report are based largely on the excellent papers of Dowes, Scudder, Richter and Holt.

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CREOSOTAL IN THE TREATMENT OF PNEUMONIA.*

HERBERT B. WHITNEY, M. D.
DENVER.

If there were anything of general use in this disease which might in even a very restricted sense be termed a specific; or if there were any well recognized plan of treatment, a deviation from which might perhaps be followed by increased mortality, the writer would hesitate long before even mentioning a preference for a single drug. But now, as in the past, the treatment of pneumonia is indefinite and unsatisfactory. None but the most optimistic can be confident that he has ever saved a life threatened by this disease or even essentially modified its course. One may hope that in a very small percentage of cases the judicious use of stimulants has tided his patient over a critical period; but quite as often he will ask himself, with the utmost self-distrust, whether he may not have applied the lash too vigorously, and driven some poor jaded heart to a premature collapse. To the man who contemplates the ever varying methods of the past 25 years—the rise and fall of quinine, of digitalis, of the salicylates, the ammonia preparations, the poultices, ice packs, hydrotherapy, and a multitude of similar earnest but futile endeavors to diminish the mortality of this dreaded disease—to such a man the treatment of pneumonia is extremely discouraging unless—well, unless he either sustains his courage by the hope of a brighter future, or is credulous enough to believe that he has found something in the nature of a specific. At a recent meeting of the American Climatological Society creosotal was somewhat highly extolled by a certain member, whereupon another expressed much surprise and even chagrin that any member of that enlightened society should be still idiotic enough to use creosotal in pneumonia. The writer of this article felt obliged to rise and enroll himself among the idiots, and is now glad to testify that it is better to be a happy fool than a gloomy sage.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

Creosotal was first recommended in pneumonia by Cassoute in 1900. In the same year Eberson reported 23 cases thus treated and concluded that the most noticeable effect of creosotal was a rapid fall of temperature, usually within 24 hours, followed by euphoria. He claimed that it greatly shortened the duration of the disease. In 1901, Dezso writes of it as a "specific", since "so large a number of cases treated exclusively with it react promptly, and improvement is always noticeable within thirty-six hours." In 1902 W. H. Thompson of the Roosevelt Hospital in New York reported a mortality of only 5 per cent under creosotal. He considered its effect specific for the reason that of all his cases 75 per cent ended by lysis. A. H. Smith also, of the Presbyterian Hospital, says that lysis begins in twenty-four hours, and that 90 per cent of all cases so treated end in that way. B. Friedman says: "The action of the remedy is certainly bactericidal, and inhibitory to pneumococcal growth." He thinks that the rapid fall in temperature and the improvement in the general condition can be explained in no other way. Meitner says: "A marked diminution of fever is often produced in a few hours, and at most two days." He gives 1 gram daily in the first year of life, up to 12 or 15 grams daily in adults. In 1906 Johns of Budapest reported 100 cases of broncho-pneumonia treated by creosotal. He claimed that in many protracted cases it caused an almost critical termination of the disease. Walser, in 1905, writes of it as a "sovereign remedy" in pneumonia, "rendering the causal agent harmless." Finally, Wilcox, in his recent book on therapeutics, affirms that a large proportion of cases of pneumonia treated with creosotal from the start in proper doses (and he recommends as much even as 25 grams daily) will prove abortive.

All the writers hitherto quoted insist on large doses, namely, not less than 1 gram daily in the first year of life, and a corresponding increase up to 12 or 15 grams in adults. Personally, I always give to adults 1 gram every two hours, day and night, which is equivalent to 3 drams in the twenty-four hours. I have been told by quite a number of my colleagues in Denver that they had been unable to get any appreciable results from the use of creosotal in pneumonia; but I have invariably found that either the dose was ridiculously small, or that the treatment had not been begun until late in the disease. I note, too, that while creosotal is mentioned by several recent authors as a serviceable drug in pneumonia, either nothing is said about the dose, or the one recommended is wholly inadequate; as, for example, when Forschheimer suggests 5 minims every two to four hours. We all know that in pulmonary tuberculosis 10 to 15 drops three times daily has been usually regarded as a fairly large dose; and I doubt much whether the great majority of those who have tried it in pneumonia have greatly exceeded this amount. I believe it to be of the utmost importance both that large doses be administered and that it be begun if possible in the first twenty-four hours. I do not know that it is useless even late, but I believe that the chance of brilliant success diminishes with every day up to the fourth, later than which any favorable effect is very problematical. That the size of the dose is a matter of great importance needs no argument. Who would expect results in malaria from 2 grains of quinine a day—a dose to which 5 drops of creosotal every four hours would very nearly correspond?

Moreover, it is to be particularly emphasized that these large doses are neither difficult to take, nor in any way injurious. To adults I give 15 drops in two capsules every two hours; the creosotal is ordered in bulk, with a sufficient number of empty capsules, and directions are given to immerse the bottle of creosotal in hot water for a few minutes, and then to fill perhaps a dozen capsules at a time. That these do not disturb the stomach in the least, not even to the extent of an unpleasant taste or eructations, I can testify from my own personal experience in an attack of pneumonia as well as from that of my patients. To children who cannot swallow capsules the following emulsion is both agreeable and unirritating to the stomach:

℞
Creosotal .... 12.
Ol. Amygd. Dulc.
Pulv. Gum Acaciae
Aq. Dest. ....aa 15.
Ft. Emulsio, et adde
Aq. Menth. Pip............. 90.
Syr. Aurantii .... 30.
Misce et Sig: Teaspoonful every two hours for a child of 4 years.

In very small children the drug sometimes causes a mahogany-colored urine. I have seen this in adults. Although I have never known this to result in nephritis, it is probably best in such cases to stop the drug until the urine is again of normal color.

My own results in the last thirty-three cases in which I have used creosotal under fairly favorable conditions as to date of administration have seemed to me rather remarkable. I have quite accurate records of all these cases; but it does not seem to me that even a detailed history of each could be put before you in such a way as to convey the same favorable impression which I myself have gained at the bedside. When a patient is attacked with the early symptoms of a violent pneumonia, including both rusty sputum and marked consolidation, and the temperature then drops by lysis to the fourth day, when it becomes definitely normal, no words adequately express the delight of both physician and friends. I am well aware that cases of pneumonia not infrequently abort under any or no treatment, and that one cannot be too cautious about ascribing such a course to any particular form of treatment. But if it occurs so often under any special form that one learns to look for it and almost to expect it, one may certainly be permitted a small grain of enthusiasm for the remedy used. This has been my experience with creosotal; and without wearying you with a report of all my cases, I will merely state certain general results and relate a few typical instances of what seemed to me to be an unusually favorable course for a frank pneumonia to pursue.

I shall take only the last thirty-three cases which I have personally attended in private practice, the majority of which were in adults. I select these thirty-three cases not because results in them were better than they had been before, but simply because they happen to be all I have attended since beginning the use of a card catalogue, and hence have presumably recorded with greater accuracy. I attach considerable importance to the fact that so many of the striking results were observed in adults, because in children the natural course of the disease is very mild. I would also remind you that many of the thirty-three cases were not seen until relatively late; and that the percentage of aborted cases would probably be far greater in a carefully sifted series.

The mortality in these thirty-three cases was three. I think, however, that it would be fairer to say that in a series of thirty cases there was no mortality, for one of these thirty-three was seen only a few hours before death, and a second was an infant, seen first on the fourth day and who died thirty-six hours later. The third case which I lost was a lady of about 50 years of age who had suffered for many years with a mitral stenosis. Her heart was in a constant state of delirium cordis during the eight or more years that she was under my care, and she had had two attacks of cerebral embolus. Nevertheless, under the usual creosotal treatment she was practically afebrile on the fourth day of her pneumonia, when the heart suddenly and somewhat unexpectedly ceased to beat. Certainly in these three cases but little could have been expected from even a specific serum, if such were known.

Of the remaining 30 cases one had a normal temperature and was convalescent in 2 days, 4 in 3 days, 5 in 4 days and 6 in 5 days. This makes an average duration of 4 days for 16 of the 30 cases. Of the other 14 cases, one lasted 6 days, 2 ended on the seventh day, and in 11 the duration was doubtful because of the presence of fever for several days before they came into my care, which implies also, of course, the late beginning of creosotal treatment.

I fully realize the slight statistical value of any series so small as this. On the other hand, are not these results somewhat encouraging?

I wish finally to report very briefly some of the cases which showed a strikingly favorable course. It is understood that the numbers used are merely for convenience and do not indicate actual succession.

Case I. Ruth B., aged 10, had a rigor last evening. Now, twenty-four hours later, the respirations have increased to 48, there is considerable cyanosis, and the child appears quite toxic. The temperature is high, there is abundant bloody expectoration and there are signs of consolidation in the right front.

Second day: Morning and evening temperatures only 100.2, with indications of general improvement.

Third day: But little change.

Fourth day: Afternoon temperature, 101.4, but general euphoria.

There was very slight fever for two days more, but during this time the child seemed scarcely ill, convalescence being established on the seventh day.

In this case there are no striking features other than the continuously low temperature and mild course after a very threatening onset.

Case II. Mr. S., aged 63, was taken thirty-six hours before I saw him with severe pain in the lower right front. I found the tongue brown and dry, but the lungs negative.

Third day: There was abundant rusty sputum, and the pulse was 125 and very hard.

Fourth day: Consolidation of the right middle lobe was discovered, but the rectal temperature in the evening was only 99.2, with a good pulse of 75.

Fifth day: Evening temperature, 99.8, and he seemed slightly delirious.

There was no further rise of temperature. A little more fresh blood was expectorated on the following day, but the mind was wholly clear, and from this time on convalescence was fully established.

Case III. Mr. R. D. T., a very thin and delicate individual, was taken twenty-four hours ago with a rigor and pain in the right side, followed by a temperature of 103. The temperature is now 101.5, with slight bronchial respiration in the lower right axilla.

Third day: Afternoon temperature, 102.6; pulse, 90; respirations, 24. General condition excellent.

Fourth day: Evening temperature, 102.6. Some extension downward of the consolidated area.

Fifth day: The temperature was 100.4 at noon, but afterwards there was no more fever, and convalescence was practically completely established on the evening of the same day.

Case IV. Mr. F. C., aged 32, was seized yesterday noon with pain in the right side, accompanied by cough and bloody sputum. The temperature last night was 103, and this morning it is 103.6.

Second day: There is consolidation of the right lower lobe. The evening temperature was 104.6, the pulse 120. On the following morning the temperature was 101.8.

Third day: The evening temperature was over 102; respirations, 40. Temperature on the next morning, 102.4.

Fourth day: Evening and morning temperatures, 102.

Fifth day: Evening temperature, 102; but on the following morning it had dropped to 101, and from now on convalescence was fully established.

In this case there was a severe onset, but a gradual fall of temperature until at the end of the fifth day, when it fell definitely to normal.

Case V. Margie H., 8 years of age, had been suffering from an otitis media for several days and under the care of a specialist. Last night the temperature was 102 and considerable pain appeared in the left base behind. This morning I found a small area of consolidation in that region, and creosotal was begun at once.

Second day: There is consolidation of the lower half of the left lower lobe.

Unfortunately no accurate record was kept in this case, but it is noted that after a very mild course, convalescence was definitely established on the fifth day of the disease.

Case VI. Mrs. G., aged 50, was suddenly taken with severe pain in the region of the right breast, accompanied by a rigor and cough. I was immediately summoned, and although no local signs were discoverable, the administration of creosotal was begun at once.

During the first twenty-eight hours the temperature varied between 103 and 104, with brown, parched tongue and a pulse ranging about 120. On the second day local signs appeared in the right middle lobe.

Third day: During the first twelve hours the temperature dropped to 102, and later in the day it had fallen to normal, where it remained. From this time on convalescence was fully established.

In this case what promised to be a serious case of pneumonia in a woman no longer young was aborted for some reason in two and one-half days.

Case VII. Fred B., aged 42, was taken with severe pain in the lower right front and some chilliness. Seven hours later rusty sputum appeared in abundance and creosotal was now begun in the usual dosage.

On the following morning the temperature was over 103, with beginning consolidation of the right lower lobe. The pulse was 116 and the respiration 36. He impressed me as being a very sick man.

Second day: Temperature in the afternoon was 102, and on the following morning only 99.2, with a pulse of 96. The right lower lobe was completely consolidated.

Third day: Evening temperature, 102.4, with a considerable change for the worse in the general condition. Temperature on the following morning 102.

Fourth day: The evening temperature was 103.4; pulse, 116; respiration, 36; blood pressure, 118. The left lung also was now found to be involved, the whole left back being full of râles. His face presented the cyanotic pallor which is so ominous in this disease, and it was the opinion of both myself and a consultant, especially in view of the double involvement, that the chances of recovery were extremely small. The usual heavy stimulation was given and the creosotal continued.

On the following morning, the latter half of the fourth day, the temperature had fallen to 101.4, with a pulse of 114. There was now absolute consolidation of both lower lobes. The general condition, however, seemed to be somewhat improved; and on the evening of the same day no words can express our astonishment and delight to find a temperature of only 99.6, with a good pulse of 97. On the following morning he was fully convalescent.

In this instance a man in middle life had a sharp attack of pneumonia in the right lower lobe, followed on the fourth day by similar involvement of the left, with a most alarming general condition. And yet the total duration of his pneumonia was exactly four and a half days.

Case VIII, the last which I shall relate, concerns myself when I was about 51 years of age.

One night at about 12 o'clock, after great exhaustion the evening before from overexertion in a gymnasium, I was wakened by a most excruciating pain in the right shoulder without other noticeable symptoms. It quieted down in a quarter of an hour, and I slept until morning. I then, however, became aware that something was decidedly wrong, and when about 9 o'clock I began to cough up a rusty sputum it was evident that a pneumonia had developed. I sent at once for a physician, a hospital ambulance, and creosotal, which I began to take immediately in the usual dosage of 15 minims every two hours in capsules. My temperature was between 102 and 103.

The story of this pneumonia is a short one, corresponding to its course. During the first twenty-four hours I suffered intensely with pain in the right side, requiring a good deal of morphine for its relief. Consolidation was found at the base of the right back.

Second day: The temperature did not exceed 102, and its tendency was downward. I felt considerably better, and may remark that my stomach was not inconvenienced in the least by the creosotal.

On the third day the temperature was still lower. On the fourth day it was normal, and convalescence from now on was uninterrupted; so that on the seventh day, in spite of protestations of physician and friends, I ordered my car and drove away from the hospital in about my usual health.

Thus this remedy, if such it be, has not only seemed to serve me with others. but it has also aroused within me a personal feeling of gratitude and assurance which I cannot believe is wholly illusory.

I feel that I am justified in urging the trial of creosotal, in the doses already stated, upon everyone who has to deal with any form of pneumonia. Even if it have no perceptible effect, and even if we who have used it are wholly mistaken in our observations, still it may be justly claimed that its exhibition is quite as logical as that of most of the medicines which are commonly given in this disease; and the further study of creosotal may perhaps not unprofitably bridge over the interval until the value of some serum or other specific shall have been definitely established.

342 Metropolitan Building.

IRRITATIVE STATES OF GASTRIC MOTILITY.*

J. L. MORTIMER, M. D.
DENVER.

The coordination of the various digestive functions is dependent upon proper innervation by two antagonistic systems of nerves, the autonomic and the sympathetic; these produce a tonus which may fluctuate within certain limits, and an equilibrium between the functions of the digestive organs. Moreover we find ganglion cells imbedded in the walls of the gastro-intestinal tract which serve as autonomic centres for the unstriated muscles and glands, thereby controlling the functions of the organs independently.

For the regulation of the digestive functions during the period of rest or activity, particularly secretion or motility, increasing muscular tone, contraction or relaxation, opening or closing of the sphincters, etc., the sympathetic fibres have a retarding or relaxing action whereas those of the vagus exert an exciting or stimulating influence. Aside from individual variations which may exist under normal conditions, the functions of the various organs may be considerably altered by the excessive tonicity of one or the other antagonistic system.

The ramifications of the vagus play an important part in the production of increased motility of the gastrointestinal canal. Eppinger and Hess have called our attention to the symptom complex produced by increased tonus of autonomic vagus fibres, "vagotonia," which is manifested by increased secretion, also by increased tonus and peristalsis of the stomach, spastic contractions of the small intestines and colon, and colica mucosa.

Our knowledge of gastric motility has recently been greatly improved by roentgenology, by operative autopsy, and by experimental and clinical research.

The fundus and pylorus of the stomach differ not only anatomically but also functionally. Moritz and others have demonstrated that the fundus or main stomach serves the purpose of a reservoir, whereas the antrum performs the function of a motor. In the main stomach there is a separation of the contents whereby the fluids are propelled towards the antrum and are the first to leave the stomach. Peristaltic waves begin a few minutes after food intake; they are rhythmical, of moderate depth and pass on to the pylorus, which opens after every three or four contraction waves reach it.

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*Read before the Medical Society of the City and County of Denver, October 20, 1914.

The depth of the peristaltic waves is found to vary in healthy individuals; in hypertonicity the waves are deeper, in atony they are shallower.

Peristalsis and wave depth present great variations both in health and in disease, depending not only upon the stomach musculature, the secretion of hydrochloric acid, and the pyloric function, but also upon the size of the morsel, the temperature of the ingesta, and in great measure on psychic influences. The motility of the stomach is regulated not only by the stomach interior, but also by primary external influences which reach the stomach secondarily through vagus reflexes.

Irritative states of gastric motility may manifest themselves by accelerated peristalsis, deepened peristaltic waves, or an increase in tonus. Hypertonicity and hypermotility of the stomach often accompany one another, since both may have the same etiology.

Hypermotility.

Hypermotility implies an abnormally accelerated physiological peristalsis of the fundus and pylorus in the normal direction. Fluoroscopically and in emaciated individuals with hypermotility, strong peristaltic waves are seen starting high in the fornix of the fundus, and accompanying one another rapidly on towards the pylorus. The effect of these accelerated contractions of both portions of the stomach is a rapid expulsion of the contents, provided there is no obstruction at the pylorus. A test breakfast will leave the stomach within ten to fifteen minutes; a test dinner within one to two hours. Generally, there is no prolonged hindrance at the pylorus for the passage of food or even foreign bodies in accelerated motility.

The significant consequences in hypermotility of the stomach are impaired digestion and assimilation of food. Owing to the hasty departure of the ingesta from the stomach, the compensatory function of the intestines is overtaxed by the presence of substances that have not been sufficiently acted upon by the gastric juice. This condition if long continued results in secondary intestinal disturbances, with accompanying bacterial fermentation or putrefaction of food and catarrhal inflammation; the latter finally occupies the foremost position in the symptom-complex. It is comprehensible that owing to the great loss of food absorption, the patient's state of nutrition declines rapidly and any existing symptoms of neurasthenia become aggravated.

The causes of hypermotility are mechanical, as cicatricial contractions, adhesions, displacements and distortions of the stomach or the duodenum. The most frequent cause of hypermotility, associated with hypertonicity and hasty departure of ingesta from the stomach, is duodenal ulcer (Eisler and Kreuzfuchs). Other etiological factors are, processes in the vicinity of the duodenum, adhesions, tumors of the pancreas, cholecystitis, etc. An abnormally rapid emptying of the stomach with accelerated motility following gastro-enterostomy has been reported by Schmieden, Haertel and Kümmel.

An habitual hypermotility may develop upon a neuropathic basis, and the occurrence of gastro-intestinal neuroses in such general nervous diseases as neurasthenia, hysteria and tabes is explained by the close relationship existing between the digestive organs and the central nervous system. Kussmaul, Eward, Strümpell, Dreyfuss and others attribute the various manifestations of nervous dyspepsia to some injury of the nervous system, and classify them among the symptoms of the neuroses and psychoses.

The functions of the digestive organs may be injured temporarily or for a prolonged period by psychic occurrences, such as fear, vexation, unpleasant dreams, morbid ideas, mental depression and sexual excesses.

What relation exists between secretion and motility in the hyperkinetic neuroses? A rapid expulsion of the gastric contents is found in all conditions where there is diminution or absence of hydrochloric acid secretion, as for instance in achylia gastrica, where as a result of absent acid reflex the pylorus opens more frequently and remains open for a longer period. In the early stages of hypersecretion we generally find hypermotility, whereas in the later stages owing to an associated atony, and also to the prolonged closure of the pylorus (acid reflex) hypomotility is found.

Diagnosis of gastric hypermotility: The clinical manifestations and the subjective complaints in hypermotility of the stomach are generally too vague, variable and uncertain for positive conclusions to be drawn therefrom. We can only be guided by the period of time required for the stomach to empty itself of its contents to determine the degree of increased motility; here removal of test meals and Roentgen examination are indispensable. The latter offers us in the simplest manner valuable information regarding position, size, form and tonus of the stomach, also the depth and direction of the peristaltic waves, retractions, adhesions, etc. In spastic hypermotility, it is of the utmost practical importance to differentiate between functional and mechanical causes; here the determination of the time required for the stomach to empty itself is most important, and from the amount of retention six hours after the test meal is taken, the degree of obstruction can be ascertained. If nothing can be aspirated, Elsner advises to examine the stomach washing for residue before concluding that functional hypermotility exists.

The treatment of the above-mentioned disturbance is similar to that of nervous dyspepsia, and a close study of the existing neurasthenic or psychasthenic state is essential. The patient's diet must be regulated according to the individual's taste, the existing secretory state, the intestinal functions and the behavior of the bowels. As a general rule it is not advisable to place a neurotic patient on a scanty diet; the best results are obtained from a lacto-vegetable diet with an abundance of easily digestible fats. The medicinal therapy of gastric hypermotility may be limited to the use of atropine, which has been proven by Riegel to check gastric motility and secretion.

Hypertonicity of the Stomach (Gastrospasm).

The function whereby the stomach surrounds its contents firmly has been termed by Stiller "peristole." This state of contraction caused by a reflex tonus, is found to be markedly intensified in hypertonicity, and the lumen of the stomach is diminished. A state of increased tonus of the stomach may exist without any subjective disturbance, and Roentgen examination reveals a variation in the strength of muscular contractions even in healthy individuals.

The symptoms of hypertonicity depend upon the duration and the intensity of the disturbed motor function. Gastrospasm is an exaggerated hypertonicity in which there is a cramp-like tonic state of contraction of the entire stomach musculature. This is accompanied by distressing symptoms, such as a feeling of fullness, pressure, pain, eructations, nausea, and vomiting, following even the scantiest intake of food.

The diagnosis of gastrospasm can be reached by a close observation of clinical symptoms and the markedly small contour of the empty stomach, the percussion note of which even after air or carbon dioxide inflation barely reaches the free border of the ribs. With the Roentgen rays a strikingly characteristic picture of the "cow horn" or "snake" stomach is observed, with slow penetration of the bismuth to the deeper-lying parts of the stomach. The meal remains near the fundus for a prolonged period and the relaxation of the stomach takes place in the form of a funnel, with the point towards the pylorus.

Hypertonicity and gastrospasm are the results either of an abnormal state of irritability of the gastric nerves in diseases such as hysteria, tabes and tetany; or of the irritation of a gastric or duodenal ulcer; or may be the reflex manifestations of other abdominal disturbances, through vagus participation.

A characteristic symptom of gastric hypertonicity is sensitiveness towards cold foods and drinks. Cold external applications and the ice-bag will arouse the entire symptom-complex of gastrospasm.

Localized Circular Spasm of the Stomach (Spastic Hour-glass Stomach).

Besides hypertonicity of the entire gastric musculature, the Roentgen rays reveal also deep localized spasm of the ring musculature, more frequently over the greater than the lesser curvature. This was first demonstrated by Rieder, who designated these isolated circular spasms as "fixed waves." Owing to the prolonged constriction of the stomach wall, a characteristic change of form takes place which Salomon designates "intermittent hour-glass stomach" in contrast to the permanent organic form.

These localized spasms are generally caused by fissures, erosions or ulcers; but instances of a purely functional nature may be encountered in which there is a local irritation of certain fibres in Auerbach's plexus. The deep constrictions seen roentgenographically in ulcus ventriculi are in reality rarely caused by cicatricial contraction, but are generally due to functional spasm of the circular muscular fibres, for the surgeon will often fail to find contractions that have been demonstrated with certainty by the Roentgen rays. There may also be exaggeration of an existing stenosis.

In the differential diagnosis of hour glass stomach, it is important to consider the following causes: Carcinoma, perigastric adhesions, ulcer, cicatrical contractions, physiologic constrictions and orthostatic hour glass stomach due to gastroptosis and atony. Not only should repeated roentgenological examinations be resorted to for an exact diagnosis, but also most careful clinical observation (anamnesis; chemical and microscopic analyses of stomach contents, vomitus and feces). Furthermore a spastic hour glass stomach caused reflexly may accompany chronic appendicitis, duodenal ulcer, cholelithiasis, chronic nicotine or lead poisoning and tabes. Von Bergmann has given us valuable information regarding these reflex spasms.

A characteristic finding for spasms of functional origin is the inconstancy regarding both location and time of appearance; so that they can be recognized by their changeable seat, and periodical swift appearance and disappearance.

Pylorospasm.

The activity of the pylorus is independent and automatic, is principally influenced by reflexes from the mucous membrane of the stomach and duodenum, and is of the utmost importance for the proper function of the entire stomach. The pyloric reflex is induced by the entrance of the acid gastric contents into the duodenum (Pawlow, Hirsch) whereas oils and fats relax the pylorus by their action upon the mucous membrane, producing a reflux of duodenal contents into the stomach (Pawlow, Boldyreff). The regulation of the pylorus reflex is also influenced from the interior of the stomach along the reflex path by the size of the morsel, temperature of the ingesta, molecular concentrations of solutions and chemical constituents.

As a general rule pylorospasm is caused by organic changes in or about the pyloric ring, such as fresh or chronic ulcers, erosions, scars, adhesions, pyloritis, etc. The onset of the attack is sudden, and it varies in duration. There is a cramplike contraction of the pylorus and pars pylorica accompanied by signs of stenosis, vomiting, pain and temporary dilatation of the stomach.

Spastic stenosis of the pylorus is to be differentiated from cicatricial organic stenosis by its variable periodical appearance, with intervals of complete freedom from symptoms, roentgenological demonstration of an unhealed ulcer of the pylorus or in its neighborhood, absence of yeast cells, sarcinae, and signs of prolonged retention.

The treatment of pylorospasm must first be directed to eliminating or curing the primary affection; and will further include rest cure or duodenal feeding for ulcer of the stomach or duodenum (Einhorn), removal of gallstones, etc. Such treatment, if carefully carried out, very often results in disappearance of the pylorospasm.

608 Metropolitan Building.

ECZEMA OF THE AURICLE DUE TO EXCESS OF CARBOHYDRATES IN THE DIET.*

W. C. BANE, M. D., DENVER.

The object in writing this brief paper is not to set forth anything new or undiscovered, but merely to bring out and to emphasize a few points relative to eczema of the ear, the importance of which the authorities on this subject either fail to mention or fail to emphasize sufficiently. To the general practitioner and dermatologist, as well as the specialist in diseases of the ear, I believe this subject should be of interest.

Eczema of the auricle appears in the acute and chronic forms. In the acute type there is local inflammatory swelling and redness of the auricle, accompanied by vesicles or blebs, and an exudate that is serous and at times tinged with blood. The inflammation usually appears first in the external auditory canal or behind the ear, and may extend over the adjacent areas.

The disease is usually preceded by some local irritation or traumatism. In young children it is frequently excited by the irritating discharge from a neglected otitis media. Some are of the opinion that eczema is but a cutaneous manifestation of a so-called general catarrhal condition of the system, co-existing with a diseased state of the mucous membranes.

For several years I have been of the opinion that one of the most common causes of eczema of the ear is the partaking of an excessive amount of carbohydrates in the diet, and I find that but few authors lay any stress on this point, if they give it any consideration at all. Barnhill and Wales state that "in eczematous children it is frequently found that the diet is faulty, that sweets, nuts and pastry have too largely replaced the substantial foods, and that stomach and intestinal derangements are present to an extent of being largely causative of the aural or general eczema." Friedenwald and Ruhräh in "Diet in Disease," in referring to eczema, state "that in older children the disease is generally due to excessive use of starch or sugars." Bulkley, in "Relation of Diseases of the Skin to Internal Disorders," believes that "disorders of digestion may often be observed in cases of eczema. . . . Sugars and starches must necessarily form a certain portion of the diet, but in excess . . . they prove harmful in many cutaneous affections."

A tingling, burning sensation, followed by pruritus, which at times becomes exceedingly annoying, marks the early stage. Early there appears an erythematous redness and swelling, followed by the formation of small vesicles that break and release a serous exudate that dries and forms yellowish crusts. Beneath the crusts the exudate may become infected and cause more softening of the underlying tissues. The swelling and exudate in the external auditory canal are sometimes sufficient to disturb the hearing.

The acute form may run its course within a few days, or lapse into the chronic type, depending upon the exciting cause, the treatment and the resistance of the system.

The chronic form results from the acute and may persist for months or even years before becoming arrested. The inflammation involves the deeper layers of the skin, and scales of epithelium are thrown off from time to time. Occasionally the accumulation of these scales is sufficient to entirely block the canal, and this, in a canal narrowed by thickening of the structures involved, is often the cause of the impaired hearing. If moisture or pus is present, the odor becomes offensive. In long-continued disease of the canal there occurs atrophy of the ceruminous glands.

Treatment.

Careful attention to the needs of the general system is most essential to the successful treatment of patients having eczema. Proper diet and attention to the alimentary canal are exceedingly important measures, although some authors fail to mention them. Politzer devotes over four pages to local treatment, and regards internal treatment of eczema of the ear as generally superfluous. Kerrison states that the condition regularly improves under local treatment, but knows of nothing that will absolutely insure against recurrence after treatment has been discontinued.

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*Read before the Medical Society of the City and County of Denver, April 20, 1915.

Each case is a study in itself, and the local treatment necessarily varies with the stage and type of the disease. Most of the cases of this type that have come under my care have been of the chronic form. Generally some such preparation as zinc oxide, calamine lotion, or nitrate of silver was used in local treatment. In almost all of my cases there was a history of partaking of excess of carbohydrates. Some of the patients were exceedingly fond of candy and were loath to give it up. Experience has taught me that the omission of sugar from the breakfast foods, tea and coffee, and abstinence from candy and sweets are of decided benefit; and that within a reasonably short period of time the local disease with its most annoying symptom, pruritus, will disappear. In cases of hyperplasia the local induration has usually been slower in disappearing.

A few selected cases will suffice to illustrate my point.

Case 1. Mrs. C. H. O., age 45. Patient came under my care April 23, 1912. Hearing with right ear 50/60, left ear 30/60. Ears have been affected for at least twenty-five years. Patient annoyed with itching and discharge, especially from the left ear, and more or less pain all the time in that ear. Occasionally tinnitus. Examination revealed a dry, scaly condition of both aural canals. Ears cleansed and calamine lotion applied, and same ordered for daily use in the ears. Patient was advised to abstain from an excess of sweets. May 2, 1912, only a little itching in the left ear; 3 per cent solution silver nitrate applied. Subsequently I received from the patient the report that the ears were entirely well.

Case 2. Mrs. B. P. B., age 47. Hearing right ear 50/60, left ear 60/60. Developed eczematous inflammation of left ear in December, 1912. The disease involved the external auditory canal, and about an inch anterior to and below the auricle. Calamine lotion applied. History indicated the excessive use of carbohydrates. Sweets and starches were advised against, and the attack ended within five weeks. No relapses.

Case 3. L. C. H. Age 32. Merchant. Patient came to me January 1, 1915, on account of an affection of both ears. Hearing right ear 36/60, left ear, 4/60. History of itching of both ears for one month. Some tenderness of the left ear. External auditory canals congested, and moist with exudate. some exfoliated epithelium. History of being fond of sugar in food. Canals cleansed and boric-alcohol applied. Prescribed zinc-calamine lotion. Omitted sugar from the food Patient was from out of town. Later he telephoned me that he was entirely relieved of disease of the ears.

Case 4. C. J. B. Age 22. Hotel clerk. Consulted me April 4, 1915. History of itching in both ears, and an eczematous condition for about one year. If ears are not cleaned frequently an odor develops. Digestion not good. Eats food rapidly. Takes a moderate amount of sugar with coffee and breakfast food and eats tapioca pudding every day. Seldom any candy. Cleansed canals and applied chloral-camphor ointment. Prescribed calamine lotion. Omitted all sugar from the food. Five days later the ears were quite dry, and there was no itching.

330 Metropolitan Bldg.

UNRECOGNIZED FATAL MALADY IN AN INFANT.

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MARBLE, COLO.

March second, 1915, I was called to see a male infant, two months old. Through the night, it had been restless, cried considerably and appeared to the mother to have pain in the stomach, although it did not draw up its legs as had been done in a previous attack of colic.

I took the temperature by rectum and found it 99.2. The baby was well nourished, did not appear very sick, cried under examination and nursed well in my presence. It had not vomited and there was no sore throat. The mother reported that the stools contained some white lumps which she took to be "curdled milk." The abdomen was moderately distended and tympanitic. In view of the possibility of pneumonia, I was particular to examine the chest very carefully and thoroughly, but could discover nothing abnormal and so informed the mother, although I told her what I was looking for.

One-eighth grain calomel and soda tablets were left with the mother to be given at hourly intervals, to be preceded by an enema, and she was asked to report next day if the baby was not all right.

Two days later the father reported to me on the street that the baby had been considerably better but that this afternoon he seemed somewhat fretful again. Next morning, I was called because the baby had had a restless night. The mother said that he continued to nurse well and seemed not to have any pain, but did not appear so bright and active as normally.

The bowel movements had been satisfactory. The temperature was 100.2 by rectum. There was uric acid sediment upon the diaper which the mother took to be blood. There was a very slight wheeze upon expiration, but the throat appeared normal and the respirations were not rapid. The pulse now, as at the previous visit, was about 100, strong and regular, and the heart was in its normal position.

Believing that there was some infection I could not discover such as otitis media, I ordered minimal doses of aspirin every two hours. This was at 9:00 a. m.

At 2:30 a. m. that night, one of the neighbors called me and stated that he thought the baby was dead. He was. I found he had been dead probably in the neighborhood of two hours. The mother said they had retired at about 8:30 or 9:00 o'clock and that just a little earlier the neighbor who had called me was present and had remarked that the baby seemed real "pert." The mother had awakened at about 11 o'clock and the baby was breathing, but did not seem to want to nurse, so she went to sleep again and at 2:00 a. m. awoke to find him cold and stiffened.

This was the first time I had given aspirin or any such drug to so small an infant, but I did not feel that that drug had a bearing upon the death, since all of it had been administered before the family retired and the baby seemed bright enough at that time.

The family consenting to an autopsy, I found the right pleural cavity filled with a yellowish purulent effusion and the lung entirely atelectatic. There seemed to be no displacement of the other thoracic viscera, nor any opening by which an abscess might have ruptured through the pleura from without. The thoracic pleura was injected at a point which seemed to have been opposite a corresponding small injected area on the visceral pleura of the lower lobe.

Since the death, I have learned that the mother had arrived here with her baby from Salida, Colo., only the day before I was first called, that on the night before they left there the baby was sick and had an acute cough, and that because of the contemplated journey they called a physician, who found gastro-intestinal trouble and a temperature over 102; but that the baby seemed well enough for the journey the next day. The mother failed to give me this history and I got it from the grandmother who came on later.

I regret I did not again percuss the chest upon my second visit. An operation in even so young a baby might have saved him, for he was strong and well nourished.

The exudate showed many diplococci in short chains (streptococci), lymphocytes and polynuclears in about equal proportions (not counted accurately).

HEREDITY AND DEFECTIVES.*

C. T. KNUCKEY, B.A., M.D., LAMAR.

Heredity has been defined as a genetic relationship between successive generations or as organic resemblance based on descent. Such a broad and important subject can be touched on but lightly in a paper of this character. However, a few of the leading principles of the now generally accepted theories may be presented.

Lamarck and Darwin argued in favor of the transmission of acquired characteristics, for example, that the neck of the giraffe has been lengthened by constant stretching. Mendel and DeVries laid down the principles of the law afterward formulated by Weismann as to the continuity of germ plasm; according to which the germ cells are segregated early in fetal life from the body cells, thus excluding the possibility of transmission of acquired characteristics. On this theory the neck of the giraffe is explained, not as due to constant stretching, having led to the lengthening, but by supposing that short-necked giraffes were unfit to compete with the long-necked ones as in reaching out for scanty foliage, so died out, leaving progressively only the longest-necked giraffes to breed and multiply. This is the generally-accepted theory of present-day students of evolution and eugenics.

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*Read before the Prowers County Medical Society, April 6, 1915.

Let us briefly review the process of reproduction according to this theory. Each parent, male or female, is composed of two classes of cells, which are, so to speak, immortal. These germ cells have a very similar life in both male and female. They lie dormant in the cortex of the ovary, or the basement membrane of the seminiferous tubules, until near the time of puberty, when they begin development. The nucleus (which is the exclusive bearer of hereditary characteristics), then divides, and the cell changes from a primary oogonium or spermatogonium to a primary oocyte or spermatocyte. This again divides, but the chromosomes also divide, reducing the number to one-half that of the somatic chromosomes. These reduced germ cells again divide, without reduction of chromosomes, and eventually form the mature ova and spermatozoa.

After fertilization takes place the chromosomes of the nuclei of both ovum and spermatozoon again divide and are equally mixed, each taking an equal share in the production of every cell in the growing organism.

Soon after differentiation of structure takes place in the fetus, the primitive ovaries or testicles are formed, and in these are located the germ cells which multiply and eventually proceed to evolve again into mature ova and spermatozoa, independently of the body cells.

The chromosomes of the germ cells are regarded as composed of an infinite number of groups of molecules. Each of these groups forms what is known as a determiner. There are determiners for size, quality, texture and color of every part and feature of the body. Thus a determiner for most parts is obtained from both male and female sides. But in the reduction of chromosomes many determiners may be lost. On these determiners depend all the characteristics of the new life, both mental and physical. Some characteristics are more powerful or potent than others. These are called dominant and the weaker ones recessive. The transmission of the dominant and recessive characteristics is governed by the mathematical laws of chance. Thus the third generation of a mixture of a pure dominant and a pure recessive strain will give 25 per cent. pure dominants, 25 per cent. pure recessives, and 50 per cent. mixtures which will resemble the dominant, but which, on being bred together, will reproduce the same percentage here stated.

It is self-evident that with such an infinite number of determiners and characteristics and mixtures of them it is exceedingly difficult to study any but the simplest combinations. But very much has been done. Thus brown eyes are due to a determiner that produces the brown pigment. while blue eyes are due to lack of a determiner for pigment. Thus it is readily seen that two people with truly blue eyes could not produce offspring with brown eyes for they would have no such determiner. Long hair in angora goats is due to the absence of a determiner that stops the growth of hair in short-haired animals. Curly hair is dominant, straight hair is due to a lack of curly determiner. In cattle no horns are dominant over horns. In horses trotting is dominant over pacing. Color is dominant over albinos (lack of determiner).

But we are little concerned in the inheritance of minor physical details. What concerns us chiefly is the nervous system. Any lack or perversion here forms one of the great class of mental defectives. As causes of defectiveness we have poor combinations of parents, i. e., with improper determiners. inbreeding, syphilis, alcohol, nervous and physical diseases, mental and nervous exhaustion, and excesses and poisons of all kinds; at the same time the exact origin of inherited defects is not yet fully understood

It goes without saying that the old idea, handed down from time immemorial, of the mother "marking" the child is utterly fallacious. The child in utero is as much a parasite as a maggot in a wound and has no direct connections with the mother. But the hygiene of the pregnant mother is of the greatest importance to the unborn babe. Toxins in the maternal blood stream, whether from alcohol, disease, worry, fear, anger, exhaustion or any other cause may affect the development of the fetus so that another undesirable is brought into the world.

There are many instances of defective families on record, the most classical of which are the Jukes of New York, whose twelve hundred descendants have already cost that state over a million and a quarter dollars; the "Familie Zero" of Switzerland, whose eight hundred thirty-four descendants were nearly all criminals, prostitutes or beggars; and the Kallikak case in this country, in which the same man gave origin to four hundred and eighty undesirables through illicit union with a feeble minded girl, and afterwards by marriage with a normal girl, became the progenitor of four hundred and ninety-six individuals all but two of whom were normal.

Four main methods have been proposed to combat the propagation of defectives:

1st. Education. This is a failure in the case of a defective as he is incapable of profiting by it. The education of normal people is indirectly helpful in preventing the breeding of the unfit.

2nd. Restrictive legislation. This is a signal failure as in merely preventing marriage it adds illegitimacy, thus doubly handicapping the defective child.

Third. Segregation is ideal but impractical. Only the worst of the defectives can be segregated in institutions.

4th. Sterilization. This is being done in several states, notably in Indiana. It is simple and harmless, but often the evil is done before the operation is decided upon, and again it is hard to decide on whom to operate.

The relative importance of heredity and environment varies in different individuals. An individual received at birth certain pottentialities and characteristics. These cannot perhaps be fundamentally altered by environment (which includes education); but that in many cases the good qualities may be developed and the undesirable qualities repressed is beyond question.

One may sometimes question whether it is after all the best thing for the human race that we should save for future propagation so many of the physically and mentally deficient who under less artifical conditions would perish.

News Notes

The State Board of Health recently made the following medical appointments for the year: L. G. Crosby, president; S. R. McKelvey, secretary; C. A. Bundsen, vice president; J. W. Morgan, medical inspector; W. C. Mitchell, bacteriologist.

The plan by which the Mayo firm turns over to the University of Minnesota an endowment fund of two million dollars for medical education, to be carried on at least in part in connection with the Mayo clinics, has been made effective.

A fine of $20 and costs was ordered against a Denver physician who failed to report a case of scarlet fever.

Another Denver physician, who had previously received a sentence for a similar offence, was ordered to the county jail for sixty days for selling narcotics to habitual users. The defendant pleaded that he was a "Christian man and worked to relieve suffering humanity".

Dr. Maurice Kahn of Leadville announces his removal to Los Angeles, Cal. He has practiced surgery in Leadville for a number of years, but has not been well for several years past, and finally decided that an altitude of 10,250 feet was just that much too high for him. His many friends hope that he will find his diagnosis correct, and regret that he has found it necessary to leave this state.

The amount of $4,632,387, appropriated by the Pennsylvania General Assembly for public health work during the next two years, includes $2,975,807 for tuberculosis work.

Governor Carlson has appointed Dr. R. Wren, an osteopath of Trinidad, Colo., as a member of the State Board of Medical Examiners.

The defeated medical candidates for the office of Commissioner of Social Welfare in Denver are all looking just as happy as though they had come out on top.

Dr. Sharpley, the victor, announces that he will continue to act as superintendent of the Denver county hospital, saving the city the expense of the extra salary.

Drs. McGillivray and Preston, the two police surgeons recently ousted by the Denver City Council, have obtained from the District Court an order for reinstatement.

Dr. Henry Sewall has been elected president of the Association of American Physicians, which met this year in Washington, D. C.

In a recent address before parents and teachers in the East Denver High School, Dr. Amesse urged the importance of greater attention being paid to the provision of proper lunches for high school students. A resolution was passed in favor of establishing a lunch room at the high school.

Dr. R. W. Corwin of Pueblo addressed the students of Colorado College on "The Next Generation."

Dr. C. A. Powers wrote from Washington that he was going to attend the surgical meeting at Rochester and would be back in Denver about June 15.

Dr. S. F. Jones attended the meeting of the American Orthopedic Association in Detroit under the presidency of Dr. G. B. Packard.

Dr. L. L. Patterson and his wife were among those who went early to San Francisco to avoid the crowd. They are back again in Denver.

Dr. R. L. Charles will attend the American Association of Anesthetists, which meets in San Francisco on the 21st of June, and will stay on for the A. M. A.

Among those who will visit California in connection with the A. M. A. meeting are also Dr. and Mrs. Edward Jackson and Dr. and Mrs. R. Hudston.

Papers will be read at the A. M. A. meeting by the following Colorado members: In the section on surgery, O. M. Shere; in the section on obstetrics, gynecology, etc., H. G. Wetherill; in the section on ophthalmology, Edward Jackson; in the section on diseases of children, G. H. Cattermole; in the section on pathology and physiology, C. D. Spivak; in the section on nervous and mental diseases, Philip Work; and in the section on dermatology, A. J. Markley. Drs. F. P. Gengenbach and G. A. Moleen are secretaries respectively of the sections on diseases of children and nervous and mental diseases.

Dr. C. G. Hickey has been elected president of the Denver City Federation.

The Medical Science Club closed its winter session on May 29 with a dinner, followed by the usual scientific meeting.

For three weeks Dr. Amesse has been looking more than usually "pert" over the arrival of a large and vigorous male heir.

Dr. Tracy Love has resigned from the editorship of the Denver Medical Times, which we understand is to be in the care of Dr. Servoss of Reno, Nev., and is also likely to undergo a change of name.

Dr. Montgomery of Meeker is putting in several months' resident work at St. Anthony's hospital.

Dr. P. J. McHugh has returned to Fort Collins after a post-graduate trip in the East.

Dr. G. S. Driver, lately of Durango, has located at Ignacio.

Dr. and Mrs. L. E. Bartz of Windsor are spending five weeks in California.

Dr. Bower, who only a short while back settled at Ault, has moved to Kersey.

Dr. E. A. Scherrer was badly injured by an accident in which his automobile turned over on him, on May 27.

Dr. C. W. Bixler of Erie has been able to resume practice after two weeks' sickness in Boulder.

Dr. L. M. Burgess of Delta underwent an abdominal operation at St. Joseph's Hospital, Denver, on May 20. He is stated to be doing well.

Dr. Turner, formerly of Salida, has been seriously ill at Los Angeles, Cal.

Dr. J. F. Baca of La Jara sustained a pelvic fracture in an automobile accident on May 26.

Dr. Frank Finney, La Junta, will attend the June meeting of Santa Fé railroad surgeons in San Francisco, after which he will spend a month in the Adirondacks.

The home of Dr. E. Gard Edwards, La Junta, together with the furnishings, was almost completely destroyed by fire on May 18.

Mrs. C. H. Farthing, wife of Dr. Farthing of Meeker, formerly of La Junta, died April 10, following an operation.

Colorado Springs Notes.

Dr. W. A. Campbell and family are on a several weeks' trip to the Grand Canyon and Pacific Coast points.

Dr. L. H. McKinnie will be in attendance at the meeting of the A. M. A. as a delegate from Colorado.

Dr. Beverley Tucker is at Johns Hopkins for several weeks doing post-graduate work.

Dr. Daniels and family of Colorado City are on an automobile trip through Kansas during the month of June.

Dr. Thomas G. Corlett made a short business trip to California recently.

Dr. W. C. Allen, one of the veteran practitioners of Colorado Springs, died of heart disease on June 2.

Dr. F. A. Faust and family are visiting the California expositions.

The El Paso County Medical Society has taken quarters for its library and meetings in the Elks' Home Building, located in the center of the city. The room has been very nicely fitted up with bookcases, tables and library easy chairs, and should prove a great convenience to the Society.

DR. GEORGE H. STOVER

The following resolutions upon the death of the late Dr. George H. Stover have been adopted by the executive committee of the University of Colorado School of Medicine:

Report of the Committee on Resolutions Upon the Death of Dr. George H. Stover.

"In the death of Dr. George H. Stover the medical department of the University of Colorado has sustained a severe loss.

"For the past nineteen years he was connected with one of the medical schools in Colorado, fulfilling his duties with characteristic interest and enthusiasm. As soon as roentgenology became accepted as a definite science and a valuable adjunct to the field of diagnosis and therapeutics, he was elected professor of roentgenology by the Denver and Gross College of Medicine.

"In 1909 he was elected dean of the Denver and Gross Medical College, a position which he filled with credit to himself and honor to the College. He continued in this capacity until the amalgamation of the Denver and Gross Medical College with the medical department of the University of Colorado in 1911, since which time he had occupied the chair of roentgenology in the University of Colorado. His lectures were always practical and instructive, for he drew upon his large collection of pathological plates of all parts of the body, and illustrated his talks by lantern slides. In addition to his work at the medical school, he was a frequent contributor to many of the leading medical journals of the country, and was editor of the Denver Medical Times for a number of years.

"Any new specialty in the practice of medicine requires the combined efforts of many men in all parts of the world before a definite status can be established for it, and Dr. Stover by his work and contributions to the field of roentgenology has been an important factor in placing this specialty upon the firm and well-recognized ground that it stands upon at the present day.

"In view of his conscientious and well-recognized services in the field of roentgenology, not only to the University of Colorado, but also to the medical profession at large, it seems fitting that the University of Colorado should pay tribute to his memory.

"Therefore, Be it Resolved: That the University of Colorado has lost from its teaching force by the death of Dr. George H. Stover a man who by his faithful devotion to research work shortened his life, but in so doing left for himself a name which will live as long as the annals of roentgenology exist, and set an example which should ever be a stimulus to succeeding generations entering the same field of work.

"The University of Colorado feels honored that it has enjoyed the privilege of having Dr. Stover as one of its faculty, and expresses to his family its keen sense of his loss, and further conveys to them its deepest sympathy in their bereavement.

(Signed) "S. B. CHILDS,
"LEONARD FREEMAN,
"FROST C. BUCHTEL."

Medical Societies

CITY AND COUNTY OF DENVER.

The regular meeting of the **Denver County Medical Society** was held on May 18th, 1915, Dr. W. W. Grant presiding.

Announcement was made that all physicians who were willing to lend an auto for the entertainment of members of the Physicians' Travel Club, which would be here on June 9th, should report to Dr. C. E. Edson.

Dr. Grant announced that the ordinary of the Brown Palace hotel had been secured for the address to be given by Dr. Rodman on June 14th, on "Early Manifestations of Cancer."

An unusually interesting program was given in the form of a "Symposium on Cancer." The first paper was by Dr. C. N. Meader, entitled "Medical Aspects of Cancer." The "Surgical Aspects of Cancer" were considered by Dr. C. F. Hegner, "Cancer in Women" by Dr. H. G. Wetherill, and "Cancer of the Skin" by Dr. A. J. Markley.

In discussion Dr. Hillkowitz spoke of the importance of early diagnosis. Nothing has been shown to prove that cancer is due to a parasite. It arises from tissues within the body. Dr. Tennant suggested that the facts in regard to cancer should be placed before the laity. Dr. Shere spoke of the importance of trauma as a cause, and Dr. Tracy Love spoke of the importance of educating physicians to recognize the early symptoms.

Dr. Grant, in discussion, spoke of the insidious character of cancer and laid stress on the points of early diagnosis.

(These papers will be published in full in Colorado Medicine for July.)

Dr. Hillkowitz moved that the cancer papers be put into form for publication in the press. Carried.

H. R. STILWILL,
Secretary.

EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held at the Society's new library and meeting room at the Elk's Club Building on May 19, 1915, at 8:15 p. m., with the president, Dr. McConnell, in the chair, and a record attendance of forty-four members and three visitors.

Resolutions of respect upon the death of the wife of our member, Dr. O. W. Spicer, were adopted and ordered sent to Dr. Spicer.

Dr. Gilbert spoke upon the present condition of the public health and requested that the Society would express itself upon the question of removing the muzzles from dogs at this time. A motion was carried stating that it was the sense of the Society that the muzzles should be removed, to be replaced when necessary.

Dr. Mayhew presented a clinical case as follows:

Complete Bony Ankylosis of Both Elbow Joints. The patient, J. R., a Mexican girl, aged 12 years, had suffered from smallpox at the age of 6. She was made at that time to lie on her back, with her hands behind her to prevent scratching her face. In some way the elbows became infected. The pus discharged and drained for ten months. When seen in March, 1915, she presented a complete bony ankylosis of both elbows. All joint structure had been destroyed on both sides. There was no sign of epiphyses either at the lower ends of the humeri or the upper ends of ulni or radii. The radio-ulnar articulations were also destroyed. The muscles of the upper arm were atrophic from disuse. On March 26, 1915, the right arm was operated on, according to the Binnie method, except that the incision was made over the external condyle instead of to the outer side of the olecranon. A flap from the anconeus was interposed. Recovery was uneventful. She now has free motion at elbow of forearm upon arm. Pronation and supination are limited. Owing to the muscular atrophy she has little power in her arm, but can feed herself, write, do her hair, etc.

Dr. Dennis moved that the special committee appointed to furnish the new quarters and move the library be extended a vote of thanks. Carried.

The application of Dr. Carl S. Adams for membership in the Society was read.

The following program was rendered:

Dr. L. J. Henderson, professor of biological chemistry at Harvard University, delivered a very interesting lecture on "Acidosis."

A symposium on the "Practical Utility of the Laboratory" was given as follows: (a) From the standpoint of the internist, by Dr. Gardiner; (b) from the standpoint of the surgeon, by Dr. Mayhew; (c) from the standpoint of the ophthalmologist, by Dr. Neeper; (d) from the standpoint of the laryngologist and rhinologist, by Dr. Dennis.

Discussed by Drs. Gilbert, Swan, McKinnie, Loomis, Boyd, Bortree and Mayhew.

A motion to charge each member $1 for a key to the bookcases was carried.

There being no further business, the Society adjourned to the dining room, where lunch was served.

GEORGE B. GILMORE,
Secretary.

OTERO COUNTY

The **Otero County Medical Society** met in regular session on Tuesday, May 11th, 1915, at 8:15 p. m. Dr. A. S. Brunk called the meeting to order. Upon motion of Dr. Finney it was decided to have a midsummer picnic. The name of Dr. H. M. Newkirk of Swing was proposed and reported upon favorably.

Dr. Johnston read a paper entitled "The Local Health Officer," emphasizing the necessity of supporting the officers in quarantining even mild contagious diseases. Dr. J. L. Stubbs read a paper on "Twilight Sleep," which was definite and instructive and from a medical standpoint showed clearly the merits and limitations of this method. The meeting was well attended by Rocky Ford and La Junta men.

R. S. JOHNSTON,
Secretary.

PUEBLO COUNTY.

The **Pueblo County Medical Society** met May 18, 1915, with President Taylor in the chair.

Dr. H. B. Killough presented a splendid paper on "Emergency Surgery," which was very freely and favorably discussed.

Dr. B. M. Steinberg and Dr. Frederic Peirce were elected to membership.

A communication from the Santa Fé railroad relative to a special train and rates to California was read and filed.

Dr. J. J. Pattee was appointed as a delegate to the Pan-American Congress.

J. H. WOODBRIDGE,
Secretary.

The **Pueblo County Medical Society** met in regular session June 1, 1915, President Taylor presiding.

Dr. Pattee presented a paper on "The Correction of Strabismus in Children by Glasses". This paper proved one of the most instructive and beneficial papers of the year. It was appropriately illustrated by four clinical cases, whose presence Dr. Pattee had secured.

J. H. WOODBRIDGE,
Secretary.

SAN LUIS VALLEY.

The San Luis Valley Medical Society met in Alamosa on Wednesday evening, May 19th, 1915.

The Society was entertained at a trout dinner by Dr. Davlin at his residence.

Dr. Spitzer of Denver was the guest of the Society and gave a talk on "Methods of Diagnosis of the Genito-Urinary Tract that Can Be Used by the General Practitioner."

He rather discouraged the use of the cystoscope by the general practitioner unless he were to use it frequently. He, however, encouraged the use of the microscope more often, and a more thorough use of urinary analysis. Dr. Spitzer is a good teacher and left an excellent impression with those present. Unfortunately many, who had planned to attend the meeting, were detained at home.

A donation of $25 was voted to the Belgian relief fund.

The time and place of the next meeting were left open.

Those present were Drs. Miller, Ferguson, Shelton, Judson, Aberg, Covelle, Morse, Davlin, Richmond and Herriman.

L. L. HERRIMAN,
Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

A special meeting of the **Colorado Ophthalmological Society** was held in Pueblo, May 22, 1915, Dr. J. J. Pattee presiding.

Dr. Edward Jackson, Denver, made a report on program of the Ophthalmological Congress to be held in Denver in July.

Dr. F. E. Wallace, Pueblo, presented the following cases:

1. A woman of 22 years, with choroiditis in the region of the macula. Failing vision with eyeache upon doing near work, was the only complaint. History of tuberculous process in lung two years ago. Dr. Edward Jackson and Dr. D. H. Coover, Denver, concurred with Dr. Wallace in the belief that the eye condition was tuberculous.
2. Man with retinal and choroidal changes in left eye; vision greatly reduced. Vitreous hazy, peripheral vessels indistinct, black spots intermingled with whitish areas and proliferation of the vessels in the fundus. Running from above downward, a broad, jagged, whitish scar; but Dr. Wallace said that there was no history of injury.
3. Man aged 52 with simple glaucoma, for which trephining was suggested.
4. Child of 12 years with plastic uveitis; tension markedly elevated, sclera thin, seclusion of the pupil with obliteration of the anterior chamber. Dr. Wallace said that he could see nothing for this case but enucleation.
5. Woman 61 years old with diabetic cataract and corneal infiltration.
6. A child 4 years old with specific keratitis. The child also had cleft palate.

Dr. H. M. Thompson, Pueblo, presented the following cases:

1. Man of 26 years with mature cataract in the left eye and some opacity of the right lens. Patient's right eye correction was plus 2.00 D. sph., combined with plus 1.50 D. cyl. ax. 15 degrees, with which he saw 20/20. Dr. Thompson concluded that cataract in this case was due to eyestrain.
2. Man 28 years old with chorioretinitis, which was thought by some of the members to be of specific origin.
3. Man 53 years of age with posterior polar cataract of the right eye. In the left eye an opaque lens was dislocated.
4. A boy of 14 with interstitial keratitis.
5. A man 40 years old with chorioretinitis and an opaque dislocated lens in the right eye which by change of posture could be made to appear in the anterior chamber or disappear into the vitreous.

Dr. J. J. Pattee of Pueblo, with whom the Society met, presented a case of retinal detachment, a case of uveitis; and a man aged 69 with atrophy of the right optic nerve, vision in the left eye being impaired as a result of injury sixteen years before.

E. T. BOYD,
Secretary.

Book Reviews

Pyelography (Pyelo-Ureterography) A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By William F. Braasch, M.D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $5 net.

This volume of 313 pages with 296 pyelograms is the only complete volume as yet extant on this new subject, and is therefore incapable of comparison. The author deals with pyelography and pyelo-ureterography in a masterly manner from the urologist's standpoint, taking it up in various chapters which deal with its history, the technic, the normal pelvis, all abnormalities of the pelvis and ureter which may be caused by various kidney lesions, mal-positions, and tumors both intra and extra-renal. He describes the normal pelvis in one chapter and uses this description to demonstrate the abnormalities which exist with given lesions.

The chapter on renal stone and that on ureteral stone are well worth careful attention, while the last chapter, dealing with congenital anomalies, is extremely interesting.

Owing to the wealth of material at the Mayo Clinic and to the operative interference usually following his diagnosis, the author has been able to verify, as shown by the text, many of the conclusions he draws.

While one who is versed in this science can not agree with all the conclusions and all the dicta laid down, still it must be admitted that the author has as much right to his opinion as others have to theirs. No doubt many of these dicta will be changed in the course of the next few years, as the science is still young and there remains much work to be done.

It is to be regretted that the author misquotes authorities in some places and in others fails to give credit where credit is due. It is startling to observe that he has failed to make use of stereoscopic pyelograms in this work and one wonders whether he uses this aid in his own clinic. He travels by long roundabout routes, for instance, to the deduction that a shadow is a stone in the ureter or is extra-ureteral, without arriving at a positive, definite conclusion, when a pair of stereoscopic roentgenograms would settle the question for him with great ease.

This work will be found to be of great value by the expert in this field, and while the neophyte will find it rather difficult, he will, as he progresses in his practice, appreciate it more and more. The tendency is to leave the impression with the beginner that pyelo-ureterography is the alpha and omega of urological diagnosis, a mistake which must not be made, and which neither the author nor any other experienced urologist would make. The author is of course well aware of the fact that this science is but one of the many aids to urologic diagnosis, and not, in certain cases, the most important, although in others it is practically invaluable.

The reviewer would advise the addition of this book to the library of every one interested in the field of roentgenology, as well as those interested in the field of urology. W. M. S.

Mothercraft. By Sarah Comstock. Illustrated. New York; Hearst's International Library Co. Cloth. Net $1.

A nicely written and instructive book for the mother of today. The author starts her book with the illustration of a young wife who trusted to instinct for the care of her baby. As a result, he died. This was because she was "the amateur mother of yesterday, instead of the professional mother of tomorrow." Many children die each year from preventable diseases; so "The oldest, newest, biggest profession for woman is mothercraft."

The book takes up parental care as the first step in the science of mothercraft. It deals with the dress, diet, bathing, exercise and mental attitude of the prospective mother; and also takes up the preparation of the wardrobe for the coming baby.

The author speaks of different schools in this country which teach mothercraft, and of the way in which they teach the care of the infant from the time it is born.

She then takes up the management of the infant, beginning with the nursery, clothing, feeding and general care. She follows the baby as it grows into childhood, stating how to avoid deformities and preserve the health of the growing child; and taking up the mental development, as well as the care of the body from the eyes to the feet. M. R. S.

Diseases of the Digestive Organs. With special Reference to their Diagnosis and Treatment. By Charles D. Aaron, Sc.D., M.D., Professor of Gastro-enterology in the Detroit College of Medicine and Surgery; Consulting Gastro-enterologist to Harper Hospital. Octavo 790 pages. Illustrated, 154 engravings, 48 roentgenograms and 8 colored plates. Philadelphia: Lea and Febiger. Cloth, $6.00, net.

In this work we have a most interesting, thorough and up-to-date volume dealing with the entire subject from both medical and surgical aspects, and in a most concise and practical manner.

Beginning with the physiology of digestion, both gastric and intestinal, the author follows with full instructions as to gastric and fecal analysis, laying much stress upon the latter as being of great value in both intestinal and stomach diagnosis.

Unfortunately, the five chemical tests for gastric carcinoma are of value only in moderately or far advanced cases, though Gluzinski's avails in differentiating cancer and ulcer.

A chapter is devoted to x-ray examination and the illustrations are especially good.

The portion of the work referring to diet and treatment in stomach and intestinal diseases is clear and rational, though, as is usual, the author's ideas in these matters differ in some respects from those of other writers and clinicians. On the whole, however, he stands on solid ground.

When he launches into the subject of concrete diseases the author leaves little unsaid, and shows a most varied experience with every possible pathological condition involving mouth and tongue (to which 55 pages are devoted), esophagus (36 pages), stomach, small intestines, liver and appendages, pancreas, colon, sigmoid and rectum, with special chapters devoted to motor, sensory, and secretory neuroses. This portion of the work is most carefully worked out and of great practical interest to any who are meeting and treating gastro-intestinal diseases. It is far too thorough and technical for hasty consideration.

The general arrangement of the book is most satisfactory and it will be found of great value either as a reference work for the man doing general practice or as a book for careful study by the gastro-enterologist.

If there is any criticism in the line of omission, it relates to the psychic phase of various forms of digestive disorders, and to the study of the intestinal bacteria. These, however, might more properly be referred to the neurologist and bacteriologist. H. S. C.

Minor Publications Received. (1) Proceedings of the Connecticut State Medical Society, 1914. (2) State Livestock Sanitary Board, Harrisburg, Pa. Circular No. 32: The Production of Artificial Immunity Against Tuberculosis in Cattle, by S. H. Gilliland, V.M.D., M.D.

One Day's Rest in Seven. The New York Court of Appeals recently upheld the constitutionality of New York's one-day-rest-in-seven law. It is only seven years since the same court refused to sanction the prohibition of night work for women. Even the legal mind is subject to the laws of change.

THE COLORADO STATE MEDICAL SOCIETY.

(Incorporated November 1, 1888.)

The Next Meeting Will Be Held in Denver, October 5th, 6th and 7th, 1915.

OFFICERS, 1914-1915.

President, Geo. B. Packard, Denver.

Vice Presidents, 1st, Ella Mead, Greeley; 2nd, V. A. Hutton, Florence; 3rd, M. R. Fox, Sterling; 4th, L. C. Bolton, Cedar Ridge.

Secretary, Crum Epler, Pope Block, Pueblo.

Treasurer, W. A. Sedwick, Metropolitan Building, Denver.

BOARD OF COUNCILLORS.

Term Expires, 1915—C. F. Gardner, Colorado Springs; E. A. Whitmore, Leadville. 1916—A. G. Taylor, Grand Junction; J. C. Chipman, Sterling. 1917—Horace G. Wetherill, Denver; A. R. Pollock, Monte Vista. 1918—J. W. Amesse, Denver; E. A. Elder, Pueblo. 1919—J. A. Matlack, Longmont; Edgar Hadley, Telluride.

DELEGATES TO AMERICAN MEDICAL ASS'N.

Term Expires, 1915—L. H. McKinnie, Colorado Springs; Alternate, O. D. Wescott, Denver. 1916—H. R. McGraw, Denver; Alternate, F. R. Spencer, Boulder.

COMMITTEES.

Scientific Work, S. Fosdick Jones, Henry Sewall, Crum Epler.

Credentials, Crum Epler, Pueblo; D. P. Mayhew, Colorado Springs; B. F. Griffith, Leadville.

Public Policy and Legislation, W. H. Sharpley, Denver; O. M. Gilbert, Boulder; J. W. Amesse, Denver; D. A. Strickler, Denver; H. R. McGraw, Denver; L. H. McKinnie, Colorado Springs; C. E. Tennant, Denver; Geo. B. Packard, President; Crum Epler, Secretary, ex-officio.

Publication, Melville Black, Denver, Chairman (1915); A. J. Markley, Denver (1916); L. B. Lockard, Denver (1917).

Auditing, C. B. Dyde, Chairman, Greeley; A. J. Nossaman, Pagosa Springs; G. L. Hoel, Fort Collins.

Necrology, C. E. Edson, Denver; J. U. Sickenberger, Grand Junction; Samuel French, Meeker.

Medical Education, W. P. Harlow, Chairman. Boulder (1915); Frost C. Buchtel (1916); Will H. Swan, Colorado Springs (1917).

Health and Public Instruction, R. W. Corwin, Pueblo; M. E. V. Fraser, Denver; F. W. Kenney, Denver.

Committee to Cooperate with State Pharmacal Association, Geo. W. Miel, Chairman, Denver; Geo. A. Moleen, Denver; Wm. Senger, Pueblo.

Committee of Arrangements for 1915 Meeting, A. J. Markley, T. E. Carmody and W. A. Sedwick, Denver.

Constituent Societies and Times of Meeting and Secretaries.

Bent County, first Tuesday of each month; P. A. Leedham, Las Animas.

Boulder County, every Thursday; C. L. La Rue, Boulder.

Crowley County, second Tuesday of each month; E. O. McCleary, Ordway.

Delta County, last Friday of each month; W. Scott Cleland, Delta.

Denver County, first and third Tuesday of each month; H. R. Stilwill, Denver.

El Paso County, second Wednesday of each month; G. B. Gilmore, Colorado City.

Fremont County, fourth Monday of January, March, May, July, September and November; R. C. Adkinson, Florence.

Garfield County, first Thursday of each month; W. W. Frank, Glenwood Springs.

Huerfano County, P. G. Mathews, Walsenburg.

Lake County, first and third Thursday of each month; E. A. Whitmore, Leadville.

Larimer County, first Wednesday of each month; E. Stuver, Fort Collins.

Las Animas County, first Friday of each month; C. W. Presnall, Trinidad.

Mesa County, first Tuesday of each month; R. B. Harrington, Grand Junction.

Montrose County, first Thursday of each month; S. H. Bell, Montrose.

Morgan County, E. E. Evans, Fort Morgan.
gan.

Northeast Colorado; N. Eugenia Barney, Sterling.

Otero County, second Tuesday of each month; R. S. Johnson, La Junta.

Prowers County, first Tuesday of each quarter; F. Milton Friend, Lamar.

Pueblo County, first and third Tuesday of each month; J. H. Woodbridge, Pueblo.

Routt County; H. C. Dodge, Steamboat Springs.

San Juan County; F. W. E. Henkle, Silverton.

San Luis Valley; L. L. Herriman, Alamosa.

Teller County; Thos. A. McIntyre, Cripple Creek.

Tri-County; C. W. Merrill, Burlington.

Weld County, first Monday of each month; J. W. Lehan, Greeley.

Alum in Baking Powders. It has frequently been charged that baking powders containing alum are unwholesome; this criticism being in part based upon their laxative effect. The amount of alum (sodium aluminum phosphate) used in this way, however, is quite small. According to the federal scientific board, which considered the subject, and which consisted of such men as Ira Remsen, R. H. Chittenden, and J. H. Long, aluminum compounds used in the form of baking powders do not deleteriously affect the nutritive values of foods of which they are a part; and do not have any poisonous or harmful effect which may render the foods injurious to health. If used in unusually large quantities they may provoke mild catharsis, because of the sodium sulphate resulting from the chemical reaction. But according to Professor A. E. Taylor, one of the members of the board, the use of any baking powder involves the introduction into the alimentary canal of a certain amount of saline cathartic. Cream of tartar baking powder leaves a residue of Rochelle salts, phosphate powders leave phosphate of sodium, and alum powders leave sodium sulphate.

"Typhoid Mary." A recent outbreak of typhoid fever in the Sloane Hospital for Women, New York, was shown to have been caused by the well-known bacillus carrier, popularly nicknamed "Typhoid Mary." This carrier, by occupation a cook, was originally discovered in 1907 by Soper, who traced her association with some twenty-five cases of typhoid fever. She was detained for three years, but released on parole in 1910. She soon, however, hired herself out again as a cook, and the Sloane Hospital epidemic has led to her reincarceration under the provisions of the sanitary code of New York.

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Editorial Comment

THE STATE SOCIETY MEETING.

SOME INTENDING CONTRIBUTORS TO THE PROGRAM OF THE ANNUAL MEETING OF THE STATE SOCIETY HAVE SO FAR FAILED TO SEND IN THE TITLES AND ABSTRACTS OF THEIR PAPERS AS REQUESTED BY THE PROGRAM COMMITTEE. AN IMMEDIATE COMPLIANCE WITH THIS REQUEST WILL BE GREATLY APPRECIATED BY THE COMMITTEE.

S. FOSDICK JONES, Chairman,
250 Metropolitan Bldg., Denver.

THE MOVEMENT FOR THE CONTROL OF CANCER.

In 1913 the American Society for the Control of Cancer was organized, under the inspiration of numerous similar movements in this country and in Europe. Within a few months the movement received the official endorsement of the American Medical Association, the Clinical Congress of Surgeons, the Western and Southern Surgical and Gynecological Societies and a number of sectional and state organizations. All these professional bodies have endorsed the design of the National Cancer Society as expressed in its constitution: "to disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer, to investigate the conditions under which cancer is found and to compile statistics in regard thereto".

As the result of a suggestion by the Society to the United States Census Bureau that the statistics of cancer mortality need to be improved both as regards their collection and their publication, the late Director of the Census and his successor have undertaken the preparation of a special report on the cancer mortality of the U. S. Registration Area in 1914. The number of deaths will be stated in full detail under some thirty titles of organs and parts of the body affected, instead of as hitherto merely under the six general groups of the international list. The Imperial Cancer Research Fund of Great Britain has long urged that it is only on the basis of such detailed data for the various organs that a true conclusion can be reached as to whether or not cancer is increasing. For the first time in the United States the data will now be at hand, as they are in England and Wales through the reports of the Registrar General, for the prosecution of such inquiries.

The Census Bureau will also for the first time in this study make a distinction between returns based on certain and on doubtful diagnosis. To secure the additional information needed for this distinction the Bureau is sending tens of thousands of letters to physicians who have certified deaths from cancer asking whether the diagnosis was based on clinical findings alone or was established by surgical intervention, microscopical examination, or autopsy.

Much of this work should really be done in the first place by the registration offices and the boards of health of the several states, where the original certificates of death are filed; and the American Society for the Control of Cancer proposes to urge upon the various state officials the need of undertaking this work in order to insure the permanence of the advance in the statistical study of cancer which has been inaugurated by the Census Bureau.

The Society has also undertaken a vigorous campaign for the education of the public through newspaper articles and lectures. In the same connection much may be done by local and state departments of health, through bulletins, exhibits, and lectures. Excellent work has been accomplished by the Committee on Cancer of the Clinical Congress of Surgeons of North America, which caused the publication of widely read and influential popular articles by Samuel Hopkins Adams. A Cancer Committee of the American Medical Association, through Dr. Frederick R. Green, has printed every week in the press bulletin of the American Medical Association a popular article on cancer which reaches 3,000 or more editors in all parts of the country.

The etiology of cancer is far from being clearly understood. But we do know definitely that the strictly local character of carcinoma in its earlier stages renders the prognosis favorable if an accurate early diagnosis is made and surgical extirpation is promptly and skilfully performed. We know even more than this. It is increasingly evident that a number of important and frequent cancerous changes develop upon a basis of chronic irritation of normal tissues. By inattention to such lesions, by inadequate warning of the patient concerning their dangerous character, by carelessness in diagnosis of or advice regarding actual cancerous growths, many physicians have placed and are repeatedly placing themselves under a terrible moral responsibility for avoidable suffering and death. As physicians we are the prime source of knowledge on this tremendously important subject. It therefore behooves us to leave no step unturned by which, through our own profesional work and through education of the public, the alarming incidence of and mortality from cancer may be reduced.

The cancer papers in the present issue of Colorado Medicine form part of a nation-wide campaign, suggested by a committee of the Pennsylvania Medical Association, for coordinated stimulation of medical and lay attention to this subject.

COLORADO'S OPPORTUNITY.

Among the transactions of the annual Sociological Conference held at the University of Colorado early in July, none will appeal more strongly to the medical profession than the resolution of the Association of State Health Officers to initiate a bill looking toward a complete rehabilitation of our present State Board of Health.

The archaic organization of this service, its political affiliations and prejudices, its lack of adequate financial support and its failure to win and maintain public confidence have combined to diminish its usefulness to a degree where a change seems imperative. The profession of the state has always been ably represented on the board; many of its officers have had large experience in public health work; yet the antiquated system under which they have labored has prohibited progress. It is refreshing to note that the members themselves recognize this fact, and are foremost in the plea for reform. With men of capacity and standing, such as President Farrand, to further encourage the movement, it does not seem too much to hope that Colorado will soon take a stand in this matter commensurate with her progress in other walks of life. J. W. A.

A FIVE-YEAR MEDICAL COURSE.

It has frequently been suggested that the most desirable way in which to increase the educational period for medical practitioners from four to five years would be by requiring every applicant for license to have had at least twelve months of hospital service. There has however been some dispute as to whether this year of service should be required before the examination for a diploma in medicine, or before the examination for license.

Action in this matter was for some time delayed by the argument that there were not sufficient hospital interneships to provide the necessary opportunity for each medical undergraduate. The marked reduction in the numbers of medical students during the past few years has, however, probably entirely overcome this difficulty; and many hospitals now find it hard to obtain a sufficient number of internes. The medical graduates of 1913 from the colleges in the state of New York numbered only 459, whereas the number of interneships available was 859.

The Commissioner of Health of New York City recently notified a number of medical schools of the State of New York that an examination would presently be held by the Municipal Civil Service Commission for the position of medical inspector in the health department, and that the Civil Service Commission had agreed to require as a condition of eligibility twelve months of hospital experience.

From several points of view a very desirable modification in our system of medical education would be in the direction of combining resident work in the hospitals with the clinical teaching of the fourth and perhaps of an additional year of undergraduate work, as is done in many European schools of medicine.

Original Articles

MEDICAL ASPECTS OF CANCER.*

CHARLES N. MEADER, M.D., DENVER.

Any consideration of the medical aspects of cancer is automatically limited to prophylaxis and to diagnosis, for there is no medical treatment. The duty of an internist toward his patient who has cancer is to make the diagnosis, to make it early, and to direct that patient urgently to competent surgical treatment. This may seem but the function of a signpost, but the fulfilment of it in early cases, which is the crux of the cancer problem, will often tax his skill, his acumen, his diagnostic resources and his tact to the uttermost, and may not seldom overpass them.

A few words on the statistical importance of this problem. Everyone knows in a general way that cancer is increasing in frequency with a rather alarming rapidity. According to the mortality report of the United States Census Bureau for 1913, which is the latest available, the death rate from all forms of cancer rose from 63 per 100,000 in 1900 to 78.9 per 100,000 in 1913, and this increase of 16 deaths among every 100,000 people was constant and uninterrupted. The prevalence of tuberculosis has during many years aroused intense world-wide interest and has set in motion countless agencies for combating the disease. In 1913 the death rate from all forms of tuberculosis in the United States was 147.6 per 100,000; that is, the death rate from cancer was considerably over half that from tuberculosis. Colorado has a low cancer death rate, as compared with many other states; in 1912 its cancer mortality was 456. We are fond of believing that a large proportion of our death rate here is due to imported cases of tuberculosis, yet during this same year the deaths from tuberculosis in all its forms numbered 1,688, which is only three and a half times as many as those due to the presumably indigenous cancer.

It has sometimes been assumed that the increase in cancer is only apparent and is due to greater accuracy in making the diagnosis, as is evidently the case with certain other diseases. But the clinical appearance of late cancer is almost unmistakable, the pathological picture of malignant disease has long been well recognized, and the number of post-mortem examinations made has increased very little if any in the past twenty years. It is altogether unlikely that we have to do with anything but an actual increase in the incidence of the disease.

Cancer is a preventable disease just as tuberculosis is preventable, and it is even more true of cancer than of tuberculosis that it is a curable disease. The analogy may be pursued even further, for the time element is if possible more important in cancer than in tuberculosis; it is upon early diagnosis and early treatment that we chiefly must base our hope to save the victims of either malady. It must not of course be overlooked that we may some day possess a specific or nearly specific remedy for cancer, even in its later stages, and the efforts to find such a remedy are to be regarded with the greatest interest and a conservative eagerness. But we do not possess such a specific today, and to deprive a patient of the opportunity of early operation while pursuing such a chimera can only end in utter disaster. On the other hand, we do have in competent surgery a remedy which should cure the vast majority of cancers, whatever their source, if it can be applied early enough. How to bring this remedy to these patients at a time when it can be curative is the problem which must be faced if our cancer mortality is to be reduced or even prevented from rising higher.

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*Read before the Medical Society of the City and County of Denver, May 18, 1915.

The responsibility for a solution of this problem rests very largely upon two individuals—the patient with an early cancer and the physician to whom he takes his early symptoms. It is true that the average layman is prone to take little notice of a lesion or of a set of symptoms which occasion him no especial discomfort, inconvenience or alarm, and to postpone a visit to his physician until one of these causes forces the matter to his attention. Very many cancers, superficial as well as deep, fail to show urgent danger signals until the disease is far advanced. The prevalent idea that cancer is a "taint," the hopelessness which it inspires in its victims, and the consequent aversion to acknowledging the presence of the disease operate in a two-fold way to prevent early consultation with a physician. In the first place, if the patient suspects the nature of his malady he will often fail in courage to face a knowledge of the truth. In the second, those friends and acquaintances who have had cancer have, for a like reason, concealed the truth until the advance of the disease made concealment no longer possible, and he has learned to call the condition cancer only when its serious inroads are made. These factors are most serious stumbling blocks to early diagnosis and must be overcome before the layman can do his proper share toward his own salvation. They are, however, precisely the same obstacles which it has been necessary to combat in securing early diagnosis and treatment of tuberculosis, and popular education can accomplish the same result for cancer that it is doing for this disease.

An improved attitude on the part of the medical profession must, however, precede any improvement in that of the public. At least one set of statistics is available to show how great is the physician's responsibility in this matter and how far he has failed to meet it. In 1911, the Cancer Commission of the Medical Society of the State of Pennsylvania reported the results of an investigation into the condition in which cancer cases come to the surgeon. Four hundred reports were received from surgeons practicing throughout the state, this wide distribution in some measure offsetting the comparatively small number of cases. The facts brought out by this investigation may be summarized as follows:

Of superficial cancers only 68 per cent and of deep-seated cancers only 48 per cent are operable when first seen by the surgeon. In 39 per cent of the superficial cancers and in 46 per cent of the deep-seated cancers there had been a precancerous condition; that is, a lesion which might have been cured by comparatively simple operative measures and the ensuing cancer prevented. In superficial cancers symptoms of the condition were apparent to the victims on an average eighteen months before the surgeon saw them: in deep-seated cancers the average was fourteen months. In superficial cancers the time between consultation with the family physician and the time of operation averaged thirteen months: in deep cancer this average was one year. When we recall that the average time elapsing between the appearance of the primary growth and the appearance of *palpable* metastases varies from eight to fifteen months, depending upon the seat and type of the growth, such figures become little short of appalling.

But the responsibility of the medical man does not stop here, for we find in these statistics that in 3 per cent of the cases of cancer of the breast the physician first consulted failed to make any local examination, while in 13 per cent he gave mal-advice—advised local applications or to "wait and see what develops." In stomach cases he made no local examination in 9 per cent and gave mal-advice in 20 per cent. In cancer of the cervix of the uterus, there was no local examination in 10 per cent, mal-advice in 20 per cent; for the body of the uterus the figures are 10 per cent and 10 per cent and for ovarian cancer 14 per cent and 14 per cent, respectively.

These statistics make sorry reading, even though every possible allowance be made for the fact that patients are prone to throw the responsibility for every error as largely upon the physician as possible. The figures have, however, the merit of honesty, and I have quoted them at length because they apply not only to Pennsylvania, but to every other state; quite as forcibly, I suspect, to Colorado as to any other. And they should bring home, as no argument can do, the insistent urgency of early diagnosis and early operation, and the grave responsibility in the matter which rests upon the general practitioner and the internist, who are usually the first to see these patients.

But, it may be asked, how shall this early diagnosis be made? The first requisite to this end is that the classical text-book picture of cancer shall be entirely set aside and forgotten. When there are present the large, hard, adherent mass, enlargement of the related glands, marked loss of weight, cachexia and secondary anemia, the most accurate diagnosis can only rarely be of the slightest benefit to the patient. The aim of the medical man should rather be to recognize, in its incipiency, that a precancerous lesion *is* presumably precancerous, or, if the cancer develops de novo, that it is presumably cancer, and to insist upon adequate and prompt surgical treatment, feeling that anything short of this constitutes a professional blunder. It is this task which will require all his skill, tact and diagnostic ability.

Of superficial cancers there is little to be said here, though the need for better appreciation of early diagnosis is great enough. Their recognition and proper management depend chiefly upon a conscientious attention to the case and a proper regard for the fact that the most benign-appearing lesion may be malignant or may later undergo cancerous change. Moreover they are readily accessible to the pathologist's microscope, which can usually settle the question.

Much the same may be said of what might be called "semi-superficial" cancers. Such are those of the uterus, of the larynx and esophagus, of the rectum and bladder. The early symptoms of these conditions are well known to all, the lesions are accessible to sight and touch, either mediate or immediate, and demand for early diagnosis only a conscientious appreciation of the possible gravity of the symptom and a prompt and competent local examination.

In deep-seated cancer the problem is very different. The pathologist cannot help until the time for operation arrives, the sense of touch is only rarely of aid before the tumor has passed into the inoperable class, and it is seldom that the internal cancer gives any distinctive sign or symptom. The diagnosis must then be made upon a combination of symptoms and signs, some or all of which are common to many diseases; and it follows that if we are to apply our sole effective treatment, surgery, early enough to be of benefit to the patient, he must not seldom come to operation with a tentative or presumptive diagnosis of cancer which may prove incorrect. This should be very frankly recognized and faced by physician and patient alike. Coincidentally the surgeon should learn to recognize that he has nothing "on" the internist when the suspected cancer fails to appear at operation, but that he may more justly blame the physician who fails to have a suspicious case operated upon.

Diagnosis must here also rest chiefly upon a painstaking study of the individual case and diagnostic acumen in appraising the evidence thus gained. To this end the most significant advance has been contributed by the clinicians who have insisted upon the great importance of precancerous lesions and the desirability of their treatment before the stage of cancer is reached. It may be impossible to diagnose in its operable stage a "silent" cancer of the stomach or gallbladder, but the symptoms of peptic ulcer or of gall stones, by which so many of these cancers are preceded, are usually plain to all who will give heed. It is less commonly remembered that recurring appendicitis, sigmoiditis and renal calculi may be the precursors of cancer, and that obstructions in the course of the large bowel furnish points of local irritation which may later become the seat of malignant change. The symptoms to which such conditions give rise bring many of these patients first to the medical man, and his is the responsibility of recognizing that these lesions, more frequently than is commonly considered, prepare the soil for a later cancer.

In spite of the great amount of work which has been done in the attempt to find a means of specific laboratory diagnosis in cancer, no method yet proposed has stood the test of extensive experiment by varied observers. The field of usefulness of such tests is, up to the present, further limited by the necessity for skilled and highly exact laboratory technique and sometimes special equipment for their performance. Of them, the procedures depending upon the Abderhalden technique, or those making use of the principle of complement deviation, seem most promising. The results from these, even in their present stage of development, may form a valuable factor in arriving at a diagnosis in any doubtful case.

It has been said that there is no medical treatment for cancer. There is no intent to minimize what has been accomplished by the various methods of radiation, but the X-rays, radium, mesothorium, etc., have no place in the preoperative treatment of operable internal cancer. Their scope must lie, at least for the present, in post-operative treatment designed to prevent recurrences and in attempts at alleviation of inoperable disease. It is yet too early to speak even hopefully of a specific cure for cancer. The principles of vaccinotherapy, serotherapy and chemotherapy have been applied in most ingenious ways, but this work, while it has resulted in a greatly increased knowledge of the biology of the cancer cell, is still wholly in an experimental state and has brought no practical therapeutic results.

Our chief dependence must still be upon early diagnosis and upon prompt and competent surgery. The physician's responsibility begins and ends with the diagnosis. To meet it he must be ever on the alert and conscientiously mindful of the lessons in the significance of precancerous lesions which modern surgery is teaching. Huge ovarian cysts were once fairly common in the surgical clinics: now, thanks to prompt surgery, such monstrous abdomens have become so great rarities that, when encountered, they furnish a spectacle to surgeon and student alike. Is it not possible that, through early diagnosis, the present extensive operations for advanced cancer may soon become, in their turn, rare spectacles? It is not a high ideal: it is the goal toward which we must work if the present cancer situation is not to remain a reproach to the profession of medicine.

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CANCER PROPHYLAXIS.*

C. F. HEGNER, M. D., F. A. C. S.,
DENVER.

The first recognition of cancer is found in records of the year 1500 B. C. Records of the year 1000 B. C. show that cancers were extirpated, and arsenic salves applied to the wounds to prevent recurrences.

Celsius devised operations for the extirpation of cancer of the lip and the breast. He was the first to advocate the removal of benign tumors. (Crocker, Cancer Research.)

The earliest conception of cancer was that of an incurable disease. This is almost as true today as it was centuries ago. We are no nearer knowing the cure for cancer. We have learned something of the origin, and much of the nature of cancer. Pathology has taught us much of its methods of growth and dissemination.

The laity and the medical profession are so engrossed with the search for the specific cause and cure, that they neglect the present efficient measures of cancer prophylaxis. If we knew the cause and not the remedy, our position would not be greatly improved. We must not be insensible to the facts we already possess in combating the disease.

The superstition and fear with which cancer is regarded are not entirely due to our ignorance of the cause, but largely to the secrecy with which our knowledge of its nature is guarded.

The public have a fixed idea that all cancer surgery is hopeless. This opinion is almost justified by the results of late surgery. It is firmly believed that if cancer is removed or operated it will be scattered all over the system. This impression must be corrected. The people do not understand the difference between the precancerous, the early, and the late stages of cancer. It is to be regretted that many physicians are not alert to these differences.

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*Read before the Medical Society of the City and County of Denver, May 18, 1915.

Modern cancer surgery is far from hopeless. Prophylactic cancer surgery can be classed with the certainties in medicine, but we fail in a majority of cases in its timely application.

Give the people all the facts we possess of cancer and its cure. The medical profession, and not cancer quacks, should educate the people. They deserve information.

The indifferent and the pessimistic physician, as well as the incompetent and inconsistent surgeon who operates on hopeless cases, with vague ideas of cure, are responsible for the hopeless attitude in cancer, and for the delay that exists before surgical aid is sought.

This is unjust to surgery and unfair to the people with cancer, and to those who may become afflicted. It frightens them away from the legitimate physician and surgeon, at a time when cure is certain. Valuable time is lost and certainty of cure is replaced by certainty of death.

The public hears only of the fatal issues of operative procedures. This gloomy prospect drives them from the medical adviser to become the prey of the cancer-paste man or the bold advertising cancer quack. The public rarely hears of the final results of treatment at the hands of these men. If equal publicity were given to the successes and failures of all methods of treatment, much progress would be made in the educational movement. Publicity will stimulate interest. Careful and prompt attention will be demanded.

Physicians must not assume the responsibility. Their obligation is to impress their patients with the possibility of cancer developing in benign lesions, and with the grave dangers of delay in every instance in which there is a suspicion of cancer. An understanding of the lesions which often precede the development of cancer, and the importance of early diagnosis and early surgery, must ever be uppermost in the minds of the medical profession. Safety and cure lie in judicious early surgery.

The prevalence of cancer is in direct ratio to the plane of civilization. With increasing complexities of life we find cancer increasing. There is an increase for each age period, the rate being greatest in the later periods, particularly after fifty years. The increase is not dependent upon more reliable statistics or upon improvement in diagnosis. In Massachusetts there has been but little difference in the system of registration of vital statistics, yet there has been an increase of 15 per cent in cancer. In New York State, where medical standards have always been high, there has been an increase of over 20 per cent. In the United States cancer has increased five fold, in England six fold, since 1850.

Table No. 1.

(By Sam G. Dixon, Commissioner of Health of Pennsylvania.)

DEATH RATE PER 100,000.

	1890.	1907.
United States	47.9	73.1
England and Wales	63.0	91.0
Ireland	43.0	76.0
Scotland	62.0	94.0
Prussia	41.0	73.0
Italy	43.0	61.0
Spain	39.0	47.0
Hungary	27.0	42.0
Netherlands	72.0	102.0
Switzerland	114.0	132.0
Pennsylvania	41.5	62.8

Table No. 2.

Report on Mortality Statistics for 1913.

	Total Deaths.	Rate per 100,000.
1901-5 (annual average)	22,214	67.9
1906-10 (annual average)	34,320	72.6
1910	41,039	76.2
1911	44,204	74.3
1912	46,531	77.0
1913	49,928	78.9

It is conservatively estimated that more than 80,000 deaths from cancer occurred in the United States in 1914.

Cancer is essentially a disease of adult life. It causes more deaths in individuals past the age of 35 years than does tuberculosis.

Cancer is preventable, or is curable, in all the surgically accessible regions of the body. It must be radically treated, by modern surgical methods, early in its course.

All theories agree that cancer never begins in normal tissue. Whatever be the cause, there must be some pre-existing local defect in which cancer develops. When such defects are on the external surface of the body, or superficial, they can easily be seen, and the host is aware of their presence. A lump or small tumor under the skin or in the breast, chronic irritation, chronic inflammation, trauma; a crack or ulcer on the skin or mucous membrane that will not heal; warts, moles and scars, particularly if they are irritated, call for prompt surgical intervention. These lesions may well be termed the precursors of cancer. They do not always form cancer, but it is the rule that cancer develops on such a base.

Table No. 3.

Association of Cancer With Benign or Precancerous Lesions.

Wilson—71 per cent; cancer stomach; ulcer base.

Schroeder—14 per cent; cancer gall bladder; gall stones.

25 per cent—cancer prostate; adenomata.

Sutton—10 per cent; cancer body uterus; fibroids.

Beckman—80 per cent; cancer breast; some benign lesion.

Coley—32 per cent; general malignancy; trauma.

Bloodgood—100 per cent; cancer of skin; some benign lesion.

If the people knew the rôle these simple lesions play in the cause of cancer, the physician would have no difficulty in having the proper advice of early surgery promptly followed.

Broadly speaking, the period during which the predisposing factors and the precursors of cancer become active is the precancerous period. It is during this period that prophylactic cancer surgery is of best advantage.

Precancerous lesions, however insignificant, are not above suspicion. Suspect the presence of cancer in all lesions where a positive diagnosis can not be made.

Conservative cancer surgery gives assurance of prevention, or of the eradication of early cancer. Cure the cases before they become cancer. The application of this principle will do much to overcome the hopeless feeling; it will materially decrease the prevalence and decidedly diminish the mortality of cancer. At the same time it will starve the cancer quacks and will restore to the medical profession its merited measure of public esteem.

The surgeon formerly had to depend upon the macroscopic appearances in judging the nature of a lesion. He had no means to determine the histologic beginning of malignancy. Para-operative pathology enables the surgeon to have the microscopic characteristics added to this clinical and macroscopic study at the time of operation. Should a doubt remain, the lesion should be considered malignant and be operated upon accordingly.

The custom of taking a section for pathologic diagnosis at one sitting and deferring the operation to another is bad practice. Make your microscopic diagnosis at the first operation or remove the entire lesion upon the supposition that it is malignant. Verify your diagnosis after operation.

Any procedure short of complete and radical removal is pernicious and meddlesome. Should a remnant remain after operation it will be stimulated to more rapid and malignant growth or dissemination will be favored.

The study of external or superficial cancer and of its precursors, and the treatment, are simple in comparison with deep-seated or internal cancer and its precursors. The principle is the same in both. In internal cancer the association of the precancerous lesion is indefinite. It is difficult to demonstrate the sequence to the satisfaction of the medical profession, not to speak of the public.

The diagnosis of deep-seated and internal cancer in the curable stage is rarely made. But we can diagnose the lesions which are frequently followed by cancer. We must urge the surgical attack upon those lesions. Cancer of the stomach cannot be diagnosed with certainty in the operable stage. But we can diagnose the condition which preceded 80 per cent of the cases. Cancer of the gall bladder cannot be diagnosed in the operable stage. But we can diagnose gall stones, which are associated in 14 per cent of the cases. Do we medical men appreciate and act on these facts? Are our patients with chronic gastric ulcer or with obscure and obstinate abdominal symptoms acquainted with these facts?

We should not wait for cancer to develop, and then hope for cure. The satisfaction that follows making an exact diagnosis does not justify prolonged observation and treatment. Too much confidence is reposed in local treatment. Neglect of the precancerous conditions sacrifices certainty of cure. If we treat long enough we sacrifice even the probability of cure. A properly informed patient would rather have a probable cancer and a positive cure than a positive cancer and a probable cure.

The physician must be alert to the possibility of cancer, whenever he sees lesions which frequently precede it. The exact nature of a lesion that does not respond to treatment within a reasonable length of time should be determined, and it should receive prompt surgical treatment.

Prophylactic surgery as applied to deep or internal cancer consists in removing the source of the chronic irritation, and the precursor, before cancer has a chance to develop.

Precancerous lesions are abnormal or pathological, and are a menace to health and life. There can be but little justification for not urging their removal. No tumor or chronic lesion is innocent, until removed. The chief object in operating on these precancerous lesions is not removal, but the prevention of malignant change. If surgery is not instituted these precursors remain, and by some unknown influence they are changed from benign to malignant.

Cancer at the beginning and early in its course is a strictly local disease, and can be eradicated by surgical methods with great certainty. The degree of certainty decreases very rapidly the longer the cancer is permitted to pursue its relentless local growth, and becomes hopeless during the later stages.

Insist upon removing all visible precancerous lesions, and upon having explored all obscure and obstinate abdominal cases in which, after reasonable time, conscientious efforts to cure medically have failed. Explain the reasons to your patients and they will act on your advice.

The hope of reducing cancer mortality lies in reminding the medical profession, and impressing upon your people, that there is a precancerous stage during which cancer can be prevented; that there is an early stage during which cancer is strictly local, and can be cured; and that there is nothing gained by delay.

Do not wait for unmistakable signs of cancer. Early diagnosis is difficult, early treatment is simple. Almost every death from accessible cancer can be attributed to delay; delay either on the part of the patient who is unwilling to accept proper advice, or on the part of the physician who neglects to give it.

Surgery at any stage must remove the precursor of cancer, or it must eradicate all the cancer cells of the local lesion, and all the cells which may have migrated to the lymphatics draining the area, as well as the surrounding tissue. This is difficult late in the course if glandular involvement is extensive, and is impossible when there is systemic dissemination. Early radical surgery is the key to reducing cancer mortality.

The report of the Pennsylvania State Medical Association's Cancer Commission in 1911 shows only 68 per cent of the superficial and 48 per cent of the deep cancers were operable when they came to the surgeon; and that 39 per cent of the superficial and 46 per cent of the deep cancers developed upon some precancerous lesion. This means that in over 40 per cent of the cases some condition pre-existed which might have been cured and cancer prevented.

Delay in bringing the cases to operation is shown by the fact that in superficial cancer the conditions had been apparent on an average eighteen months, and in deep cancer fourteen months before coming to the surgeon. An average of twelve months elapsed between the time the physician was consulted and the time of operation.

It is evident that education of the public is necessary for progress in the control of cancer. It is no less evident that the medical profession must be aroused and their apathy overcome. An active interest must be stimulated. The delay in bringing cancer to operation might be excusable in the laity, but the delay for which the members of the medical profession are responsible is inexcusable.

Superficial and incomplete examination should never be made. The Pennsylvania Medical Association's Cancer Committee found that approximately 10 per cent of the cases had had no examination and that 20 per cent had been given maladvice.

Table No. 4.

Pennsylvania Medical Association Cancer Committee.

48 per cent cancer cases operable.

46 per cent cancer cases had precancerous lesions.

Cancer of—	No Examination.	Maladvice.
Breast	3%	13%
Stomach	9%	20%
Uterus	10%	10%
Ovary	14%	14%

In Germany an investigation and publicity cancer campaign found that 33 per cent of the patients had been treated without examination. Four years later, as a result of the campaign, there was a reduction of 23 per cent in this negligence. Coincident with this improvement there was a 10 per cent increase in the operability—from 32 to 42 per cent. (Winter.) Early advice is hopeful and readily accepted.

In the United States 80 per cent of the cancers are surgically accessible, but only 30 per cent are operable when diagnosed.

Cancer early in its course has no classic or pathognomonic sign or symptom. The so-called diagnostic signs and symptoms upon which so much emphasis is laid, even in modern medical text-books, and which we were all taught to look for in cases of malignancy, such as enlarged lymph glands, palpable, hard, adherent tumor, typical ulceration, sanious or foul discharge, emaciation cachexia and pain, are not signs of early cancer, but are late or terminal signs. Their development should never be awaited in order to make a diagnosis, and having made it, hope for cure.

Cancer may be and often is present without any of these signs. Cancer is not painful. It becomes painful secondarily, by mechanically pressing on or involving nerves, or obstructing some of the natural channels of the body. Lymph glands may have secondary involvement without palpable increase in size. I have frequently demonstrated that mere size of a lymph gland is no index to its malignancy. When lymph glands are involved they block the lymphatics and force the current of lymph through other or collateral channels. Other lymph glands become infected, widespread, though still local lymphatic dissemination follows.

The so-called and greatly emphasized diagnostic signs are not diagnostic signs. They are purely prognostic signs of most unfavorable import.

Cure of cancer is an indefinite term. It is a state of freedom from local recurrence and metastases. Cure by radical operation at **the time of election,** before evident glandular involvement, is more certain than the most extensive mutilating operation at **the time of necessity,** when glandular involvement is manifest. **The time of relief,** for definite symptoms, is late when all the unmistakable signs are present.

Cancer varies in malignancy, notwithstanding histologic similarity. Many factors determine the degree of malignancy. It depends upon the age and susceptibility of the individual, the nature of the growth, the condition of the lymphatics and the character of the tissue involved. Experience and judgment must be our guide in accepting cases that seem hopeless. We must do all that is within our power for all victims of cancer. In the late cases, out of respect for surgery and regard for others with early cancer, we must not give encouragement as to cure.

Surgeons are not consistent in the application of the principles of cancer surgery. They should not accept inoperable cases, except to relieve some definite symptoms. Late operations are only palliative. The patient and the friends and relatives must be impressed with this fact. One unoperated hopeless case with his friends and relatives would do more good, by enlightening the public to the horrors of delayed surgery than dozens of extensive, mutilating, brilliant though ill-advised late operations.

Measures other than surgical command some consideration. The x-ray, especially with the newer type tubes, and radium are very potent agents and must be used with caution. They are distinctly secondary to surgery, and rarely to be considered a method of choice. Their field is postoperative prophylactic treatment, and palliation in inoperable cases.

Reliable workers with these agents all agree that early surgery is always to be preferred in those cases where complete and wide excision of the growth is practicable. Early surgery is the safest and most rational of all procedures in the cure of cancer.

626 Metropolitan Building.

CANCER IN WOMEN.*

H. G. WETHERILL, M.D., F.A.C.S., DENVER.

In women cancer most often originates in the organs directly involved in motherhood —the uterus and the breasts.

Frequently the primary lesion may be found in scar tissue in the cervix incident to injuries received during childbirth, or about primarily benign nodules in the breasts, such as small cysts or fibromata. Cancer of the uterine cervix is rare in women who have had no pregnancies, and cancer of the body of the uterus is not common in women who have borne children unless some other local irritation has existed, such as uterine fibromata, polyps and chronic endometritis.

In cancer of the breast and cancer of the uterus the rule which is now conceded to be true in cancer elsewhere in the body undoubtedly applies. "Cancer never begins in a healthy spot. There may be some dispute as to this statement, but experience in a large number of cases proves that this is absolutely true. . . . This so-called precancerous lesion is the first warning."[1]

Quoting from a report of a committee (consisting of Dr. Henry Schwarz of St. Louis, Dr. John G. Clarke of Philadelphia and the writer as chairman) made to the Gynecologic Section of the A. M. A. in St. Louis in 1910, the points to be kept in mind may be briefly summarized as follows:

1. Cancer of the human female is mostly cancer of the breast and cancer of the uterus.
2. Both forms of cancer are curable.
3. Curability depends at present on early diagnosis and early operation.

Cancer everywhere in the body and always without exception, is at some time in its course a strictly limited and localized disease. It is never a blood disease, as has been believed by many people, though its cells in advanced cases may be picked up and carried by the blood and lymph streams from the primary lesion to the liver and other distant organs and tissues of the body. The practical bearing of this now proven fact is that if the primary local focus can be completely and cleanly removed with the knife or actual cautery while the disease is yet a local one a cure may be brought about in approximately 100 per cent of all cases.

The acceptance of the above teaching implies that many clinically benign lesions must come under suspicion of being in a class which may cause them to be regarded as a menace to a patient. Indeed many such "benign" growths are upon careful microscopic examination found to contain distinct evidences of early cancer or such changes in their histologic elements as would place them in the precancerous class.

"The easier the diagnosis the worse the outlook. Few people and not many physicians realize that when the diagnosis is easy the prognosis is bad." (Bloodgood.)

Under circumstances such as these it is justifiable to remove many growths of a benign nature, and all of those presenting suspicious characteristics, in order to anticipate the degenerative malignant processes which so often supervene or originate in and about them. Applied to cancer of the breast and cancer of the uterus, early operation at the hands of a capable and thorough surgeon means a reduction of the mortality from cancer in these organs in the clinically malignant class, and almost an abolition of all mortality in those that are found to be merely histologically malignant.

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*Read before the Medical Society of the City and County of Denver, May 18, 1915.

[1] Bloodgood: "What Every One Should Know About Cancer." Prevention of Cancer Series A. M. A., pamphlet No. 1.

In order to accomplish these desirable ends, the profession and the people themselves must be taught that cancer of the breast and of the uterus is primarily a local disease, that it is never primarily a blood disease, and that while it is yet local it can be cured by thorough removal; that many apparently benign growths may predispose to cancer; and that all lumps and tumors in the breast and uterus and all irregular menstrual bleeding and unusual or offensive vaginal discharges demand consideration by a competent and conscientious surgeon who has been trained in the recognition of the early symptoms of cancer, and who in doubtful cases can employ such means as may be required to determine the exact character of the lesion.

It is not inappropriate in this connection to pay a tribute to the splendid publicity campaign of the Committee of the Clinical Congress of Surgeons, of which Dr. Thomas S. Cullen of Baltimore was chairman, and to Mr. Samuel Hopkins Adams, who, in cooperation with that committee, published in the Ladies' Home Journal (May, 1913), Collier's Weekly (April 26, 1913) and McClure's Magazine (May, 1913), three splendid popular, educational articles on cancer. This campaign should be followed up at intervals with similar articles in such popular magazines and even in the daily press. Such publicity serves to awaken and enlighten the people at large, and also indirectly those ultra-conservative members of our profession who are too indolent to make careful and complete physical examinations, or who are not alive to the serious significance of the earliest danger signals of this dire disease.

The present status of surgical pathology in relation to cancer of the breast is such that all lumps and nodules in the breast must be looked upon with suspicion and regarded as possible and potential foci in and about which cancer is apt to develop; and furthermore we must appreciate that such clinically benign growths may already be the seat of a histologic cancer or a nidus for precancerous cellular disarrangement. This being true, no precautions for the exact determination of the nature of such a growth should be neglected, taking the age and the antecedents of the patient into consideration, and no delay entertained in advising exploratory operation if other methods of exact diagnosis leave one in doubt. In regard to cancer of the uterus thoroughly benign pathologic processes, such as cervical erosions and lacerations, endometritis and uterine fibromas may give rise to symptoms which closely simulate the early symptoms of cancer, and a very nice question of differential diagnosis may be presented for solution. Here again "safety first!" should be the rule, and procrastination and gynecologic tinkering must not be tolerated. An exploratory curettement or section of the cervix with prompt examination of the removed specimens by a competent pathologist must settle all doubts. If with such symptoms fibroid or myomatous tumors are found in the uterus, or even such a general diffused fibrosis as follows an old chronic infection of the endometrium and body of the uterus, it is far safer to remove that organ.

In the past there has been much incorrect teaching with reference to the "malignant degeneration" of fibroid tumors of the uterus. We now know that this rarely takes place. Indeed, many specimens have been seen in which uterine fibroids and cancer existed coincidently and the cancer had grown all about the fibroid without invading it. Fibroids of the uterus seem to be quite resistant to the growth of cancer. Excellent illustrations of this characteristic resistance to cancer by fibroids may be found in Dr. Cullen's "Cancer of the Uterus", pages 442, 443, 451, 454 and 466. He speaks of them as cancer "associated with myoma."

However, it was shown some years ago by Dr. Charles Mayo that fibroid tumors of the uterus directly predispose to or cause cancer of the uterus through mechanical pressure and irritation, just as cancer is caused elsewhere by these agents. It is often the opposite wall of the uterus in which the malignant growth originates, when a submucous myoma presses upon it across the uterine cavity. This in itself constitutes a good and sufficient reason for the removal of a suspected uterus which contains such a benign tumor. I want to suggest in this connection that the same kind of mechanical irritation may be a determining factor in producing cancer of the breast through the pressure of fibroid nodules and tense cystic tumors, particularly when bruising or rough handling, tight corsets or other forces have injured the portion of the mammary gland about them. In any event such benign growths can only act as irritants to the adjacent tissues and are better out.

Every experienced surgeon is familiar with auto-implantations of cancer under certain operative conditions, particularly after vaginal hysterectomy. You all know how rapidly and with what renewed energy recurrences follow incomplete operations, particularly in young women. These established clinical facts should serve as a warning to us to be very careful how we tamper with cancer in making incomplete and exploratory operations and in taking specimens for laboratory examination. Bloodgood's[2] statement about this kind of surgery is eminently sound and rational, and is based upon clinical facts which are incontrovertible. He says: "No surgeon should remove a lump in the breast for microscopic study, delay a few days or weeks and then perform the complete operation for cancer, if the tissues studied microscopically should prove to be malignant, because the patient whose chances to be cured were at least 80 per cent will by such procedure be almost doomed to death by cancer. The diagnosis must be made at the exploration of the tumor, and in case of doubt the complete operation for cancer must be done at once."

The logical and only rational deduction from this reasoning is that every exploratory operation for cancer anywhere in the body must be made in the presence of a competent and trustworthy pathologist who is fully equipped to give the surgeon a prompt and accurate report upon the character of the growth removed before the wound is closed.

Often the gross appearance of the mass will be typical of cancer or otherwise when it is exposed, and the operation can proceed without delay in waiting for a report from the pathologist. It is in the doubtful and border-line cases that the pathologic report is most important, and in such instances any reasonable delay during the operation for a correct report is justifiable. While a positive report is conclusive it must be remembered that a negative report is not necessarily so, particularly when the examination can be made of a few sections only and hurriedly at that. Under such circumstances the surgeon must be guided by his experience and judgment, and aim always to make his error, if one must be made, on the side of safety for the patient. When in doubt, operate as if it were cancer.

Unfortunately few hospitals are equipped and few pathologists are trained for such operating-room reports.

"There are many good surgeons through the country, but few good surgical pathologists, except in the teaching centers. The time is speedily coming when every hospital will have a trained and expert surgical pathologist on its staff, a man whose advice can be had at every operation. He will prove to be one of the hospital's most valuable assets. Some may ask why we have not more such men. The truth is that the young physician must make a living, and as the pathologist receives, as a rule, a mere pittance for his work, few have the scientific perseverance to enter this field. This field must be made sufficiently remunerative to induce plenty of capable men to enter it. When once they embark upon it, learn what a fascination there is in following an individual case to its very rock bottom, obtain here and there a clue enabling them to forecast with a degree of definiteness and precision whether this or that patient will recover, and even every now and then discover something that has never been known to medical men before, then you will find men who will never give up the study of surgical pathology."[3]

Regarding the treatment of cancer of the uterus and of the breast little need be said.

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[2] Control of Cancer—Public Health Series, A. M. A., Page 5.

[3] Thos. S. Cullen. Address in Gynecology. Canadian Med. Assn. Jour., Aug., 1913, p. 6.

To succeed in effecting cures, operations must be done early and thoroughly, with a wide margin of safety and with complete removal of all of the glands within range of and tributary to the growth.

Radium has disappointed the whole medical world in cancer of these organs, and the X-ray can be said to have done nothing more with the equipment heretofore employed. Whether the promised results with the new Coolidge tube will be satisfactory and curative or not remains to be shown. The first reports are favorable. Let us all hope that they may continue to be so.

For advanced or clinically malignant growths, particularly of the uterus, nothing appears to have given so good results in checking the disease and in promoting the comfort and prolonging the life of the patient, as the actual cautery. From the days of Byrne to those of Percy the cautery has been used effectively. The cautery clamps of Downs of Philadelphia have given excellent results in my hands. One patient operated upon with them in June, 1905, for what appeared at the time to be a most extensive and hopeless adeno-carcinoma of the cervix, involving the vault of the vagina and bladder, lived until August, 1912, and then died of another disease.

Wertheim's operation has found little favor on this continent, and as practiced in Austria and Germany fails to inspire one with confidence in the results claimed for it. The primary mortality is necessarily high, and better results than have heretofore been reported will have to be presented to popularize this operation here.

In conclusion, permit me to quote again from the report of our committee to the Gynecologic Section of the A. M. A. The important items to be remembered are:

1. The necessity of early competent local examination of all suspicious cases (especially on return of the menses after the menopause).
2. The necessity of obtaining material by curettage or trial excision for microscopic diagnosis (and of immediate operation in positive and doubtful cases).
3. The necessity of placing these cases in competent hands, and the wrong toward the patient that is committed when her doctor temporizes with a suspected case.
4. The necessity of furnishing honest and reliable statistics.

310 Metropolitan Building.

CANCER OF THE SKIN.*

A. J. MARKLEY, M.D., DENVER.

Malignant disease as it affects the skin presents variations in clinical appearance and in degree of malignancy greater than are observed in malignant involvement of any other tissue; at times so relatively benign that even after a duration of many years and with considerable local destruction it may be completely and permanently removed, again progressing so rapidly and extending so widely that any and all efforts directed toward relief are without avail. Microscopic study and clinical experience indicate that these variations in clinical behavior correspond to fundamental differences in character of the cells constituting the new growth and to differences in anatomical relation of the part affected to other structures, particularly the lymphatics. For instance, microscopic study and clinical experience teach us that cancerous growths about the eyelids and the nose are chiefly of the basal-celled type, show little or no tendency to metastasis and may be removed by wholly local measures, while the apparently similar growths of the lip or tongue are practically always of the prickle-celled type, rapidly involve the lymphatics and require the most radical and extensive operative treatment; and yet again, the malignant process having its origin in a pigmented mole is hopeless from the time any change is evident.

All such growths, however, whatever their character and whatever their degree of malignancy, have a wholly local origin and for a time remain as wholly local processes, which may be removed by appropriate local treatment. At such an early period they present few or none of the appearances ordinarily looked for in cancer of the skin; yet developed to such a degree that they are easily recognized, they have too often progressed beyond the limits within which proper treatment is almost certain of success.

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*Read before the Medical Society of the City and County of Denver, May 18, 1915.

The first step, then, in the campaign against cancer must be a widespread effort on the part of physicians to so familiarize themselves with the varying features of beginning malignancy and with these conditions which are definitely acknowledged to be precancerous that these may be diagnosed sufficiently early to permit of proper treatment before they have developed to such an extent as to necessitate extensive and too frequently unavailing operations.

Both sarcoma and carcinoma attack the skin, and either may arise as a primary process in the skin itself or secondarily to a similar process of deeper tissues. Carcinoma is by far the more common, since the skin and its appendages consist largely of epithelial elements, but it is well to keep in mind the fact that sarcoma may originate in the connective tissue of the skin.

It should be definitely understood that malignant disease never has its origin in normal tissue, but in tissue that is defective either from congenital malformation or as the result of disease. Any persistently inflamed or diseased area, or any defect congenital or acquired, may therefore become the site of origin of a malignant process, and unless definitely shown to be otherwise, is properly subject to the suspicion of beginning or at least of potential malignancy.

Symptomatology.

The more advanced stages of any of the malignant processes are too familiar to require any comment. The clinical features of beginning malignancy and of the various precancerous conditions are, however, much less well known and much more difficult of recognition, and since the importance of early diagnosis cannot be overestimated, it is only toward that particular phase of the subject that attention is here directed.

Sarcoma of the skin may begin as a single nodule or as multiple nodules, in the latter case being almost without exception secondary to some internal focus.

The degree of malignancy varies within the widest limits, the primary single growth being almost benign and the so-called **melanotic sarcoma** being the most highly malignant of all tumors.

In the early stages sarcomata appear as small, firm intracutaneous or subcutaneous nodules, upon which dilated blood vessels soon appear, but there is no tendency toward early ulceration. In the melanotic form the first evidence of trouble may be an increase in size and depth of color of a pigmented mole or pigment spot with accompanying signs of irritation in the skin immediately surrounding. Any such occurrence should lead to immediate and thorough removal of the lesion, and since it is impossible on clinical grounds alone to determine the exact nature of nodules in or beneath the skin, they should always be removed as a wholly justifiable means of preventing possible trouble of a most serious nature.

Carcinoma is generally supposed to be a disease of middle and old age, and so far as regards the deeper structures this is fairly true. Epithelioma of the skin, however, is seen very frequently in individuals under 30, and it is most important to recognize that no age is exempt from this form of malignancy when the conditions suitable for its development are present.

Carcinoma may arise primarily in the skin or invade the skin secondarily from the deeper parts. It may be conveniently divided into: (1) tubular and lenticular carcinoma, (2) melano-carcinoma, (3) Paget's disease, (4) epithelioma. The first of these varieties occurs always as a secondary process and is readily recognized. The second is clinically indistinguishable from melanotic sarcoma, has a similar origin and course and requires the most radical treatment at the earliest possible moment.

Paget's disease, or malignant papillary dermatitis, occurs ordinarily on the breast, but it may affect other parts. On the breast it leads ultimately to cancerous involvement of the whole gland. At the beginning the condition has the appearance of an ordinary eczematous patch, moderate inflammation, with redness and scaling later, becoming intensely red and excoriated with a copious clear viscid exudation and much itching and burning. The area is sharply outlined and deeply infiltrated, shows no tendency to ward healing and resists all the usual methods of treatment. Such a condition, especially on the breast of a woman past 40, should receive immediate and proper attention.

Epithelioma is the most common of the malignant disorders of the skin. It may originate on any part of the skin or mucous surface, but is most frequently observed about the face, the genitals and the extremities. Two distinct varieties are recognized, but in their early stages they can be distinguished only by microscopical examination, and even though they differ in their malignant tendencies, it is advisable to regard them with equal suspicion and treat them with equal thoroughness.

The first recognizable sign of epithelioma may be the appearance in apparently normal skin of one or more pinhead sized papules or nodules of a reddish, yellowish or wax-like hue, growing very slowly and retaining their epithelial covering until this is torn away by picking, scratching or accidental injury, after which a crust forms and healing does not take place; or it may originate in a fissure or excoriation, or a wart which is constantly irritated and refuses to heal, bleeds readily from the slightest injury, and even though a crust forms, healing does not proceed beneath it, but when the crust drops away or is removed, there is seen a small ulcerated surface. Somewhat later the edges become definitely hardened, elevated and waxy looking, and the characteristic features of epithelioma should be recognized even though the lesion be very small.

Fortunately the development of the process above outlined is usually slow, and it is many months or even longer before the definite clinical features of epithelioma are presented, yet microscopically such conditions have long been malignant and the golden opportunity for their treatment lies in that time during which a positive diagnosis can be made only by the microscope.

The occurrence and persistence of such fissured, excoriated or crusted lesions about the lips, tongue, nose, eye-lids, cheeks, forehead or backs of the hands in an individual of any age is a warning which should be heeded and acted upon, since clinical experience fully proves that the majority of epitheliomas begin in just such lesions, and their proper treatment is very simple and wholly justified if it prevents in even a limited degree the evils that we so often see following upon neglect.

Precancerous Conditions.

Malignant disease may also arise as a secondary process in a considerable number of pathological conditions of the skin, some congenital and some acquired.

The most important of these are moles, pigmented and non-pigmented, warts, vascular nevi, the various keratoses and certain chronic and subacute inflammatory processes which are characterized by dryness, scaliness and a tendency toward over-production of the epithelial elements in the involved area. The addition of malignancy to such a condition is apt to be regarded as merely a phase of its progress and therefore overlooked until considerable malignant involvement has occurred.

Moles, particularly of the pigmented variety, are frequent sources of malignancy of the most deadly kind. The elevation above the level of the skin of many such moles exposes them to irritation from friction of the clothing or from picking, and the inflammation thus induced may after a time terminate in some form of melanotic growth which spreads with the greatest rapidity and is practically always fatal.

Warts very frequently undergo an epitheliomatous change when subjected to irritation. The histological structure of a wart renders it particularly prone to this process, and the added vascularity of inflammation is often all that is required to turn the scale in the wrong direction.

Vascular Nevi, aside from their disfiguring appearance and tendency to severe hemorrhage, at times become sites of very malignant new growths, angio-sarcoma. This is not apt to occur in the ordinary port wine mark but is a dangerous possibility in the elevated highly vascular angioma.

Senile or **Seborrheic Keratoses** are very frequently observed in the skin of elderly persons and in individuals of florid complexion who have been much exposed to wind and sun; they often appear quite early in life. The usual situation is the face, but the backs of the hands are also frequently affected.

Beginning at a spot of slight discoloration, there is soon noticed a greasy roughened appearance which gradually increases in area and thickness until a horny adherent crust is formed, varying in color from gray to brown or even black, or the crust may be soft, greasy and easily removed, leaving a moist excoriated surface.

This condition is a very common source of epithelioma about the face and on the lips and should always receive proper treatment before such an accident occurs.

Ulcerations due to syphilis or tuberculosis particularly of the less active type, not infrequently undergo epitheliomatous change. and it is very important that they be healed up as soon as possible.

Finally it may be repeated that any abnormality of any kind about the skin or mucous membranes should be regarded as a possible source of malignant disease. The removal of such precancerous lesions is the work of but a few minutes, and is neither difficult nor dangerous, if they are completely eradicated. Incomplete treatment is, however. worse than none at all, since it may provoke development of the condition which it is intended to prevent.

432 Metropolitan Building.

DIAGNOSIS AND TREATMENT OF PAPILLARY OR VILLOUS TUMORS OF THE BLADDER.*

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The diagnosis of these tumors is made by seeing and recognizing them through a cystoscope. The patient consults the physician because he has bloody urine, which is the sole symptom.

There are recognized today for practical work two forms of these growths: the first papilloma and the second papillary carcinoma. Now and then one may differentiate one of these from the other through the cystoscope, but mostly there is doubt in the mind of the cystoscopist, and he attempts to aid himself by punching out a piece of the tumor with a cystoscopic punch, and sending such piece to the pathologist for histologic examination. When he can, he cuts such a piece from both the tumor and the mucous membrane below it. When he can not, perhaps because the tumor is subsessile and he can not see or reach the place where it merges into mucous membrane, he bites off merely a piece of the tumor.

The pathologist returns a diagnosis of papillary carcinoma or papilloma according to whether he finds epithelial cells which have penetrated their basement membrane or not; the structure of the two growths being otherwise identical. Presuming that he has examined a piece of the growth in which this penetration of the basement membrane has not occurred, he will report that the growth is papilloma, and vice versa. It is evident that one might have given him a piece of cancer from a spot where penetration has not occurred, and probably would do so in a large number of early cases, so that he would call it papilloma. The chance of his erring is therefore very great and I think it wise to regard all these growths as cancer, since it is practically impossible in a large percentage of cases to make a differential diagnosis, despite the fact that some of them are fairly easily curable.

One important aid to the diagnosis of cancer is the bimanual examination. If the growth can be felt in this manner, it is because the bladder wall has been infiltrated, and this of course means cancer; although if there be no infiltration, and the growth can not be felt, it does not mean that it is not cancer.

The treatment of the future should of course be governed in a large measure by our results in the past, so let us consider what the statistics show. To be sure statistics in operative cases will be favorably colored, because there is a tendency for an operative case in which there is recurrence to seek other advice, and these cases will be marked "disappeared," while on the other hand the patient who is cured is not so apt to be lost sight of.

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*Read before the Medical Society of the City and County of Denver, April 20, 1915.

Rafin collected from his own work and the literature up to the time of his writing a large number of cases which had been operated upon, including 156 cases of tumor which could not be proved to be carcinoma and have therefore to be classed at present as papilloma, and he reports the results as follows: operative mortality 4 per cent; recurrence 30 per cent. Watson traced the recurrences further and found a still higher percentage. He reports 40 per cent of recurrence in pedunculated papillomata and 98 per cent in sessile and multiple tumors.

In those cases known to be malignant, the operative mortality taken from a number of the best operators, when a partial cystectomy is done, seems to be about 15 per cent, and the recurrence in those who outlived the operation 65 per cent. Where total cystectomy was performed, the operative mortality according to Verhoogen, in 59 cases of his own and others, was 52.7 per cent, late results showing six more dead in the first year, seven more dead before the third year, and only two patients or about 3.4 per cent of the whole series alive after three years.

Where recurrences take place after papilloma has been removed, whether the new growths appear at the site of the former tumor or elsewhere in the bladder, in over 75 per cent of the cases the recurrences are malignant, and of course after the removal of malignant growths the recurrences are always malignant.

The high mortality in partial cystectomy, and the still higher mortality in total cystectomy, may be explained partially by the fact that these patients are not in such good condition as the average operative case, as the result of long continued hemorrhage and cachexia; and the high percentage of recurrence can undoubtedly be explained by the fact that unless great care is exercised larger tumors are removed while exceedingly small tumors not visible to the naked eye are left. That this occurs frequently is evidenced by the fact that recurrences are rare at the original tumor site, but common at other places.

To avoid this high recurrence wherever resection is performed one should make two or three cystoscopic examinations before operating, arbitrarily dividing the bladder in four parts, carefully charting the tumors in their respective quadrants, and checking up at the second and third cystoscopic examinations, so as surely to avoid missing any tumors which are visible through the cystoscope. Thus, tumors which are not visible to the naked eye, but which are visible to the eye through the magnifying lens of the cystoscope, will at least be located. To be sure, at operation one would be unable to find these tumors so charted, because they would not be visible to the naked eye, even though the bladder were perfectly dry, which of course it would not be, but would contain, despite careful and assiduous sponging, some blood and urine.

I have had the opportunity to remove the bladder, in its entirety, from three cases of papillary tumor in which the patients died; and on opening the bladder widely, in a good light, outside the body, it was with the greatest diffculty that I could see some of these growths.

Five years ago Dr. Edwin Beer, of New York, much disgusted with the results following various sorts of operative interference in these cases, published a new method of treatment on which he had been working for three years. His new treatment consisted of introducing a cable through an operating cystoscope, and treating these tumors with a high frequency current much as De Keating-Hart had for years been treating tumors in more accessible places. This treatment, promptly taken up by the urologist in general, has yielded no bad results of any sort, while the good results, and in fact the cures, were phenomenally large in number.

As Clark of Philadelphia puts it, the advantages are as follows: Abnormal tissue is rapidly and effectively destroyed, and the operation is bloodless and may be carried on in one's office, the current in itself being anaesthetic. There is devitalizing action on cells of less vitality than normal cells, even deeper than the fulgurated area, leaving the normal cells intact. There are sterilization and rapid repair, while blood and lymph vessels are sealed by the current, thus preventing any chance of metastasis. The cosmetic result is perfect, because there is no contracted cicatricial tissue following the burn.

As to the results of this method of treatment: At first, the cure of an occasional case was reported with surprise, but recently men who have treated a series of cases are reporting about 66 2-3 per cent of cures, watching their cases carefully afterwards and treating new growths as they arise. Many of these cases do not have recurrences, and in fact the recurrences are much less numerous than are met with after operation.

It was supposed that only those growths known as papilloma could be treated in this manner, and Beer said that if the tumor did not give way to treatment in the hands of a competent operator, in all probability the growth was papillary carcinoma. In 1912, Keyes of New York reported a case of papillary carcinoma, which he had cured by this method without recurrence, and since that time numerous cases of papillary carcinoma have been reported cured. Other growths of the bladder frequently give way to this treatment, but with them this paper has nothing to do.

There is no contraindication to this treatment, as numerous growths may be treated at the same sitting, and the fact that a tumor is pedunculated, sessile, or sub-sessile, simply means more or less work. There is nothing to lose by treating papillary carcinoma in this fashion, as even though we did not cure more than one case in five, our results would easily be many times better than the open operative results. It is advisable, however, in those cases which have extensive involvement of the bladder wall, to open the bladder from above and fulgurate through the wound, because more can be accomplished at one such fulguration than at half a dozen sittings with the cystoscope, and in these cases in particular time presses.

I have treated nine cases in this manner, with the following results: Six are completely cured, the hemorrhage having stopped absolutely and no recurrence being present. The number of treatments has varied from two to eight. Some of these cases have been followed for two years or more, and one of them for two months only. The remaining three cases are dead, and their history is briefly as follows: One case with extensive papillary carcinoma was absolutely resistant to treatment, no impression being made on the hemorrhage, from which the patient finally died. As this was my second case, and my technique not as yet well developed, I feel that the treatment was not all it should have been, and that the ending would be different were the case to come up today. The second one of these cases which terminated fatally was one in which a papilloma had been removed by excision. There was a recurrence, which was cured by fulguration at another man's hands. But the patient became pregnant, new tumors appeared, and treatment was interrupted because, as I understand, the uterus became so large that it was impossible to work in the sulci of the bladder (formed by the pregnant uterus) in which these tumors lay. I believe that had this case been regarded as carcinoma, and the uterus emptied so that further work could have been done intravesically, the woman would have been alive today. When she came to me she had extensive carcinoma, involving the entire bladder wall and the cecum, and of course operative interference was entirely out of the question. The last fatal case was that of a woman suffering from a transverse myelitis as well, and the physician whose case it was thought it not worth while to treat his patient, despite my earnest entreaties, and she died a few months later of anemia. All of my cases had multiple tumors, and none of these tumors was pedunculated; it is, therefore, fair to presume that they were all papillary carcinoma.

Compare now our results with this manner of treatment and those obtained by men who operated on their cases. Sixty-six and two-thirds per cent of our cases are cured without operation and without even an anesthetic. With open operation on papillary tumors as they come, the operative mortality will be from 20 to 25 per cent and the recurrence will be easily 60 per cent. Most surgeons are anxious to have these recurrences treated by fulguration. If you had a papillary tumor of the bladder, how would you want it treated?

628 Metropolitan Building.

OBSERVATIONS UPON THE USE OF PITUITARY EXTRACT IN OBSTETRICS.*

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The first physiological observations on the nature of pituitary extract were made by Oliver and Schäfer[1] in 1895. They found that intravenous injections caused a prolonged rise in blood pressure, which they attributed to constriction of the arterioles, together with increased activity of the heart. While working on ergot, Dale[2], in 1906, noticed that pituitary extract caused contractions of the cat's uterus. The recognition of its value in obstetrics we owe to W. Blair Bell[3] of Liverpool, who in 1909 published his well known paper upon the subject, and made popular the administration of pituitary for hastening labor.

The name pituitary extract, commonly used, is unfortunate in that it implies derivation from the anterior lobe of the hypophysis. The anterior lobe, developed from the buccal cavity, although shown by Paulesco[4] to be necessary to life, when injected intravenously is without immediate apparent physiological effect. Howell[5] first showed that the posterior lobe, or pars nervosa, developed from the third ventricle of the brain, is the portion responsible for the physiological phenomena which arise when the whole gland is injected intravenously. It causes a rise in blood pressure, slowing and strengthening of the heart beat, and after atropin or section of the vagus, a constriction of the coronary and dilatation of the renal vessels; produces diuresis from specific action on the renal epithelium; and has a direct action on the involuntary muscles, notably those of the uterus, intestines and bladder. It has a slight mydriatic effect and is a galactagogue.

The claim is made by some that the active principle is a colloid substance developed from the pars intermedia, an investing epithelium covering the greater part of and discharging into the posterior lobe.

There are on the market several preparations of pituitary extract. They are dispensed in sterile glass ampoules, each containing one cubic centimeter of a liquid made from the infundibular lobe of cattle, sheep, hogs and horses. With certain preparations a standardization of the drug exists, but according to Roth[6], who compared six different products by their effect on the blood pressure of dogs, and on the isolated uterus, there is a marked variation in some of them. In certain cases the gland seems to have a relatively marked toxic effect, especially on the fetus, and to insure safety and consistency in dosage, it is essential that all preparations be standardized.

We have made observations in forty-four obstetrical cases, and have used two preparations, one from a British firm, the other an American product. The drug may be used intravenously, intramuscularly or subcutaneously, the most marked effect being noted in the order named. In all our cases the subcutaneous method was used because it was deemed safer. The interval between the time of injection and when the first effect was noted varied from one to six minutes, the average being three and one-half minutes from the time of administration.

Often the first few pains were tetanic in character, and extremely severe. It has been noted that tetanic pains are more apt to occur when there is marked resistance to the descent of the child, as from an undilated cervix, the pelvis or a rigid perineum. In certain cases the intervals between pains were shortened to a half, to one and a half or two minutes. They were of longer duration and harder. The effect of the drug lasted one-half to two and a half hours, and was most marked fifteen minutes to a half hour from the time of injection.

Of thirty-seven cases in which the drug was given during the first and second stages of labor there was noted a marked effect in twenty-six, slight in three, none in eight. That no effect was noted in almost a fifth of the cases may possibly be due to improper standardization, with an occasional weak preparation, or to the fact that, as has been noted, the uterine segments do not all react in the same way and it appears as though some possess immunity.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

In nine cases we recorded the effect on blood pressure. The greatest rise was twenty millimeters of mercury. There was no change in two cases, and the average was nine millimeters. In fifteen cases, the change in rate of the maternal pulse was determined. There was an average fall of seven beats. In four the rate was increased, which we attribute to excitement accompanying severe tetanic pains.

The fetal heart in nine cases showed an average fall of eleven beats. Besides the direct action of the drug on the fetal heart, the child is subjected to other effects. With tetanic pains the uterine placental site is so lessened that imperfect oxygenation may result; or with strong pains prolonged and undue pressure on the head is caused.

Of thirty-three cases in which the condition of the child was recorded, there were twenty born in excellent condition. Six were slightly asphyxiated, and five were extremely asphyxiated. Of these three lived but a short time. Two children stillborn were known to be alive before pituitary extract was given.

Such poor results for the fetus require further analysis. Several writers have called attention to the toxic effect of pituitrin on the child. Sheffield[7] has reported a case of poisoning through the mother's milk. If pituitary extract is the factor it evidently has its toxic effect promptly, for with one exception, a forceps case in which the drug had been given twenty-one hours before, all the asphyxiated babies in our series were born within one hour from the time of administration.

One fetal death was in the case of a primipara, who had been in labor thirty-seven hours, and had reached the second stage with the head still unengaged. The fetal heart was normal, when the membranes were ruptured and one-half an ampoule of pituitary was given with the hope that the head would descend. Almost immediately hard tetanic pains occurred, descent was rapid and the child fifty-nine minutes later was born in pallid asphyxia. At the end of two hours, by resorting to oxygen, it was revived, but it remained feeble and lived only fourteen hours. Its weight was 4,200 grams, and the conjugate measured 10.75 cm. During descent the parietal bones were felt to be overlapped. The rapid transit through the pelvis and undue pressure on the head combined with the tetanic contractions, which lessened the blood supply to the child, were probably the causes of death.

Another case occurred in a primipara who for secondary inertia was given two ampoules of pituitary extract. Following rupture of the membranes six minutes earlier, a slight amount of meconium had appeared, though the heart rate was normal. The cervix was fully dilated, the head just above the perineum. The extract had apparently no effect on uterine contractions, but when thirty-four minutes later the child was delivered it was stillborn. There was one loose coil of cord about the neck and possibly an occult prolapse of the cord existed. The meconium would point to this, or the pituitary was at fault.

Another death was definitely due to coils of cord about the neck. The mother, a multipara, was given an ampoule of pituitary extract with the cervix fully dilated, membranes ruptured, and head movable at the superior strait. The fetal heart rate was 132. Engagement occurred, and descent was rapid. With head on the perineum the pains again became poor, there was no advance, the fetal heart could no longer be heard, and the dose was repeated. Twenty minutes later a dead child was born. Three tight coils of cord were about the neck, the head was cyanotic, and the body pallid.

One child, born ten minutes after an ampoule had been given with the head just above the perineum, developed convulsions. These became frequent, and death occurred on the third day. No autopsy was allowed, and the cause of the convulsions is not explained.

The last death was in a premature child, probably syphilitic, which lived for five minutes after birth.

In another case the child was nearly lost. Two-thirds of an ampoule was given for primary inertia, when the cervix was but two and one-half fingers dilated. The pains were tetanic and very severe, causing a tear of the cervix and birth twenty-five minutes after injection. The child, cyanosed, required artificial respiration and attention for a half-hour.

From these cases we judge that pituitary extract is not without danger to the child; this being most marked in those cases where resistance is present with pressure on the head and where tetanic pains occur.

In seven out of thirty cases in which pituitary extract was given during labor, and the amount of post-partum bleeding was noted, the quantity was excessive or severe. In two this was due to tears of the cervix from administration of the drug before complete dilatation, and one was a case of hydramnios with excessive distension. The explanation offered by certain observers, that bleeding is due to the fact that the drug wears off and relaxation follows, does not explain our four remaining cases, as in these the drug had been given but 24, 34, 45, and 51 minutes before the birth of the child.

We used pituitary extract for post-partum hemorrhage in two cases. One was so severe that packing was about to be resorted to when it was decided to try the effect of pituitary extract. Within three minutes after its injection firm contraction and a cessation of bleeding followed. The other was a case with continued slow bleeding in which, when left, the uterus would become distended with blood. One ampoule caused continued contraction and control of hemorrhage.

Others do not report such good findings and the consensus of opinion is that better results are obtained from ergot alone, or combined with pituitary extract.

To induce labor we used pituitary alone or combined with other means six times; twice with the rubber bag, and both times effectual, once with slight manual dilatation and effectual. Once it was used alone without result. In two cases it was used to cause pains, the membranes having ruptured twenty-four hours before. In one of these the effect was remarkable. Three-fourths of an ampoule was given with the cervix but two and one-half fingers dilated. Birth occurred in twenty-nine minutes without tear of the cervix. In the other, remembering the violent effects just cited, but four minims of the drug were given and no pains resulted.

When the drug is used alone to induce labor, a review of the literature shows that failure is met with more often than success, but when combined with other methods it is of great assistance.

We have used pituitary extract in three cases to aid in the production of therapeutic abortion, two for pulmonary tuberculosis at the second month, one for severe herpes gestationis at the third month. Though combined with the introduction of the Vorhees bag, or with packing of the uterus, it was of no benefit, as in all three cases pregnancy had to be terminated later with the finger and the ovum forceps.

It is almost generally agreed that for the induction of abortion in the early months the drug is without effect.

In two cases we used the extract to maintain contraction of the uterus during Cæsarian section. Both cases were for central placenta prævia. The drug, combined with a hypodermic of ergot, was given during anesthesia; and fairly good contraction, with moderate bleeding, was obtained in both.

The most common indication for the use of pituitary extract is in secondary inertia. With the cervix almost or fully dilated, and the head low, with no dystocia, it is safe. Williams[8] states that forceps operations are reduced about two-fifths by its use, with a lessened morbidity and fetal mortality. In our series forceps were applied but three times. When there is distension of the uterus from hydramnios or twins, the strength of the pains is increased. We used the drug twice in twin cases with good results. In one, following the birth of the first child, there was a lull in the pains, when one c.c. of the extract caused prompt engagement and birth of the second twin in two minutes. In our case of hydramnios there was but little beneficial effect from the drug.

In primary inertia or at any time before complete dilatation of the cervix the drug must be used with caution if at all. The tetanic pains resulting, when resistance is offered, have been mentioned. Asphyxia of the child, tears of the cervix or even rupture of the uterus may result. Herz[9] reports such an accident. Rongy and Arbuck[10], after an extensive experience with "pituitrin", claim that it should never be used unless a general anesthetic is at hand. They personally know of two cases of rupture from its use. Any dystocia is therefore a contra-indication. It is advocated in cases of partial placenta prævia. Its employment, combined with ergot, in hemorrhage, for induction of labor, and to maintain contraction during Cæsarian section has been mentioned.

It is claimed by some to be contra-indicated in carditis, kidney disease or where there is high blood pressure. Doubt has recently been thrown on this idea, however, and Trapl[11], who reports 177 cases, while he advises cautious employment states that carditis and nephritis are not contra-indications. Stein[12] has used the drug in nephritis without ill effects. We have in our series two cases of pre-eclamptic toxemia, the two twin cases previously mentioned, in which the urine was loaded with casts and albumin. In one the blood pressure was 160, in the other 170 mm. Hg, rising to 180 after injection. There were no ill effects and in both instances labor was hastened. When the child is known to be in poor condition as shown by a slow or rapid heart, or the passage of meconium in head presentations, the drug should be used with caution, or is contra-indicated.

To briefly summarize, we have in pituitary extract a drug which is not to be used at haphazard. There is no doubt that its use is abused. It is often given with no other idea than that of hurrying the labor through regardless of conditions. It has its indications and when rightly used is a valuable adjunct to our obstetrical remedies.

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DISCUSSION.

Herbert B. Whitney, Denver: I should like to ask a question. In a recent case of posterior rotation of the occiput, with a normal pelvis, cessation of pain and complete dilatation, I used pituitrin successfully. I should like to know if it was fully indicated in such a case.

C. A. Ferris, Denver: I had hoped Dr. T. Mitchell Burns of Denver would be here to discuss this paper, inasmuch as I have helped him to get up the statistics of a series of cases which we have had under observation. I will give you a few of the findings which we have deduced. As to the statistics: The number of cases observed was, by Dr. Ferris twenty-three, by Dr. Burns fifteen; a total of thirty-eight. Pituitrin was effective in from five to fifteen minutes, in twenty-two of Dr. Ferris' cases, and in fourteen of Dr. Burns' cases, a total of thirty-six. The shortest time in which the effect was observed was three minutes; the longest time, forty-five minutes after its administration. There was no effect in one case each. Labor finished without forceps in twenty-two of Dr. Ferris' cases and seven of Dr. Burns'. Labor finished with the aid of forceps, one case of Dr. Ferris' and nine of Dr. Burns'. Relaxation of the uterus and post-partum hemorrhage following when chloroform was also used, in none of Dr. Ferris' cases and in eight of Dr. Burns'. Relaxation and hemorrhage without the use of chloroform did not occur in either group.

In regard to the physiological effects of pituitrin, its effects on the uterus are apparent, in that it greatly increases, temporarily, both the strength and frequency of the uterine contractions. In primiparae this effect is usually insufficient to be of any considerable aid in those cases where the delivery is more than ordinarily hard. In multiparae, on the other hand, its aid is sufficient to finish the labor in all instances where the cervix is sufficiently dilated and the delay is caused by uterine inertia, without other abnormal conditions, such as contracted pelvis, too large a head, and mal-positions. It should be utilized to aid the expulsive efforts, but not made to act on the undilated cervix. Its effect is likened to whipping a tired horse, you may get the animal through the mud-hole only to have him lie down on the other side. Pituitrin may rupture the uterus with the first effects, or subsequently produce so great a relaxation as to cause post-partum hemorrhage. Comparing the effects of ergot and pituitrin; ergot retracts the uterus with a tonic effect, while pituitrin causes contraction and relaxation alternately, otherwise its action would be identical with ergot. If there is too great relaxation between the contractions, then there will be a tendency to hemorrhage in cases of uterine inertia.

C. B. Van Zant, Denver: I think that the use of pituitrin extract in obstetrics is still under judgment. My own use of it has been moderate and in private practice entirely. In some cases the results have been both speedy and spectacular; is others, entirely disappointing. It has seemed to me that the hasty use of forceps in obstetric work, often apparently for the mere saving of time, is strongly to be deprecated; and I have hoped that in this new remedy we may find not merely a promising substitute, but a real advance, over the use of forceps.

Given a case of inertia of the uterus, with the child well down at the perineum, and everything at a standstill, it has been my experience that in pituitrin we have an agent which very often will do away with the use of forceps, and thereby increase the safety of both mother and child.

From the fact that it acts by vis a tergo, rather than by vis a fronte, as does the forceps, I believe that we have in the use of pituitrin an added element of safety. For with the uterus tightly contracted by the drug after the expulsion of the child from it, the condition would seem to be one of greater safety against hemorrhage than where, after forceps extraction, the question of retraction of the uterus is perhaps left mainly to chance.

Another point ought to be emphasized, namely, the value of this agent as a galactagogue. In a number of cases where the mother's milk failed within the first several days after delivery, I have seen a notable increase in its amount through the use of one or two doses, daily, of the pituitrin extract. In this way it would tide the mother over the period of poor milk supply until Nature could reassert herself.

One other use of the drug has seemed to me quite promising. In following my referred cases into the hands of my surgical colleagues, I have noticed, in the post-operative paresis of the intestines which is such a distressing condition after most abdominal operations, that pituitrin extract at times affords great relief to these so-called gas pains.

H. A. Green, Boulder: I want to report one case in connection with this paper. I used pituitrin in a case where we had twins, and within half an hour from the time we used it the first child was delivered. We tried it in a second case, but after waiting three-quarters of an hour and finding complete inertia, we had to use instruments. The results in the first case were good, but in the second case pituitrin seemed to have no effect whatever on the uterus.

C. A. Ferris, Denver: I should like to ask Dr. Van Zant in regard to pituitrin as a galactagogue, whether he used it subcutaneously, intramuscularly or by mouth.

C. B. Van Zant, Denver: Subcutaneously.

C. B. Ingraham, Denver, (closing): In answer to Dr. Whitney's question, "Is pituitary extract to be used when the occiput is posterior?" I will say that when the head is low, and there is present no contraction of the outlet, a trial with pituitary extract is preferable to the application of forceps.

In a personal communication from Dr. J. W. Williams of Baltimore, he tells me that at the Johns Hopkins Hospital they have cut down the application of forceps two-fifths with this drug. In two-fifths of the cases in which it is used there is noted some effect, but not sufficient to bring about birth, and in one-fifth no effect is noted.

That there is no effect in a fifth of the cases seems strange, but bears out what physiologists have found, namely—that when the drug is tried on isolated strips of uterine muscle, a certain number do not react. They seem to have an immunity.

There has been a great deal of dispute as to the value of pituitary extract as a galactagogue. In a recent excellent article by Sproat Heaney, he claims that the temporary increase of milk is due to contraction of the smooth muscles in the breast whereby the milk is pressed out. He proves that there is such a constriction by use of a water cannula, with a glass attachment which fits tightly around the breast. Also, by weighing the babies before and after they were put to the breast he found no increase in the amount of milk secreted over what was obtained before the drug was tried.

BLOOD PRESSURE CONTROL OF EXERCISE IN THE TUBERCULOUS.*

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Rest and properly regulated exercise are two important factors in the treatment of tuberculosis. But how to be reasonably certain when to take a patient off absolute or relative rest and place him upon a mild form of exercise is at times a perplexing question. However, for a period of two years I have been controlling the exercise of my patients by an estimation of the blood pressure, and I find that the method is far more successful and the readings a far better guide than the records of the pulse and temperature.

It had been generally conceded, I believe, that after severe athletic contests the blood pressure is reduced, sometimes to a marked degree. This was the subject of an able paper by Otis, read before the American Climatological Association in 1911. Later observations, however, tend to show that there is an increase for a certain period. Numerous workers along the lines indicated have shown that with severe exercise a marked increase is noted, which after rest tends to return to the normal for that individual, but if the strain has been too great there is a marked fall below the usual reading for the given individual. This would seem to be in direct contradiction to the results I have obtained in my work with the tuberculous. I explain this seeming discrepancy on the ground of slight exertion. No patient is permitted exercise until he has attained a certain degree of physical health and the pulse and temperature have been normal for some time. Thus it will be seen that a given patient is in a fairly normal physical state before exercise is begun. Add to this the fact that all subjects are started with only a fifteen minute walk the first day and one can see that the exertion is practically nil. In other words, the work reported on athletes shows pressure resulting from marked overexertion, while my work shows pressures resulting from very slight if any physical strain.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 aand 11, 1914.

At any rate, if such a drop was noted by Otis in normal individuals it seemed to me that this factor might be of great importance in controlling the exercise of consumptives.

With this in view a class of six men was selected, three being excellent cases both pulmonarily and physically; two fairly arrested far advanced cases; and one a rather new recruit with normal temperature but physically inferior. All were started with a fifteen-minute walk each day. The pressures on starting of the three able-bodied men were 138, 132 and 148. On their return the pressures were 138, 144 and 152. After an hour's rest the readings were 138, 142 and 158, showing apparently no ill effects from the exercise. The two fairly well arrested far advanced cases started with pressures of 164 and 124, returning with 146 and 130, and after resting 164 and 118. The first man was not used to exercise in any form, as is well shown by a drop of 18 mm. of mercury with a return to the original after an hour's rest. The over-exertion in the second man is evident, for we find after resting that there is a drop of 6 mm. from the original reading recorded, and of 12 mm. from the reading recorded on the return.

The new recruit started with 146, returned with 138, and after rest his reading was 127. The over-exertion in this instance is well illustrated from the pressure findings and was further substantiated by marked fatigue, breathlessness, and rapid heart action.

This experiment was carried on for a period of six days, each day's exercise being graded by the previous day's results in blood pressure. My first report was made in 1912, and since then I have been using this method to control the exercise of all patients. I find that in no case has harm been done. Very often I have been induced to take patients off the exercise list whose pulse and temperature reading were in no way influenced, but whose blood pressure readings showed a decrease. Later on these same patients have been put on exercise with excellent results.

Whenever a patient shows a drop of six or more mm. after rest or a marked drop on returning, even though this disappears after rest, I decreased the exercise. If there is a slight drop after returning I repeat the exercise the following day or until an even standard is maintained, when the exercise is again increased. It is interesting to note that in many of the better class of patients, from a physical standpoint, the pressures remain practically the same even up to walks of four hours a day or longer.

The appended table illustrates the facts I have tried to convey. These are cases taken at random from my records covering a period of two years' work.

		BLOOD PRESSURE			PULSE			TEMPERATURE			
Case No.	Day	Before	After	Rest	Before	After	Rest	Bef.	Aft.	Rest	REMARKS
1......	1.	145	145	158	104	114	94	98^{2}	97^{4}	98^{3}	15 minute walk.
	2.	148	148	140	100	110	83	98^{8}	97^{3}	98^{3}	Increased to 25 minutes.
	3.	148	148	155	100	98	84	98	97^{2}	98^{3}	Held at 25 minutes.
	4.	148	140	142	100	101	81	98^{2}	97^{1}	97	Increased to 30 minutes.
	5.	158	148	150	97	102	80	98^{1}	97	98^{1}	Held at 30 minutes.
	6.	148	140	125	100	98	80	98	97^{1}	98^{2}	Increased to 40 minutes.
2......	1.	130	126	126	100	100	76	98^{1}	97	97^{4}	15 minute walk.
	2.	125	125	125	114	84	86	98^{3}	97	97^{2}	Increased to 20 minutes.
	3.	120	125	125	70	72	70	97^{3}	96^{4}	97^{4}	Held at 20 minutes because of morning pressure day before.
	4.	115	128	128	80	84	70	97^{2}	97	97^{2}	Increased to 30 minutes.
	5.	125	118	126	96	88	76	98	97	98	Held at 30 minutes.
	6.	122	134	130	92	76	76	97^{2}	97	97	Held at 30 minutes.
3......	1.	122	130	135	84	84	80	98^{2}	98	97^{3}	15 minute walk.
	2.	135	145	142	88	80	80	97^{8}	97^{2}	98^{3}	Increased to 25 minutes.
	3.	130	130	126	84	80	80	98^{8}	97	98^{2}	Increased to 35 minutes.
	4.	128	135	132	90	84	80	98^{1}	98^{1}	98^{2}	Held at 35 minutes.
	5.	130	130	128	100	92	80	98^{3}	97^{4}	98	Increased to 45 minutes.
	6.										
4......	1.	140	126	140	100	120	90	98^{2}	97^{3}	97^{4}	15 minute walk.
	2.	145	110	...	104	120	..	98^{2}	97^{4}	..	Dropped to 10 minutes.
	3.										Cut off exercise.

		BLOOD PRESSURE			PULSE			TEMPERATURE			
Case No.	Day	Before	After	Rest	Before	After	Rest	Bef.	Aft.	Rest	REMARKS
5......	1.	130	112	128	80	72	80	97^{3}	96^{2}	97^{4}	15 minute walk.
	2.	136	142	116	72	76	69	97^{8}	96^{4}	97^{3}	Held at 15 minutes.
	3.	128	135	138	76	76	76	98	97^{2}	97^{3}	Increased to 20 minutes.
	4.	135	134	135	76	80	80	97^{3}	97^{2}	97^{4}	Increased to 30 minutes.
	5.	116	132	122	76	72	70	97^{8}	97	97^{3}	Increased to 60 minutes.
6......	1.	130	140	135	120	100	100	97^{2}	97^{1}	98^{4}	15 minute walk.
	2.	128	130	120	92	100	88	97	96^{4}	98^{1}	Increased to 20 minutes.
	3.	134	120	130	100	120	92	97	97	98^{2}	Held at 20 minutes.
	4.	134	134	126	92	92	100	97	96^{2}	98	Dropped to 15 minutes.
	5.	130	126	126	92	92	88	98	97	98	Held at 15 minutes.
	6.	132	140	136	92	92	92	98	97	98^{1}	Held at 15 minutes.
7......	1.	125	128	130	120	112	92	98^{1}	96	97^{3}	15 minute walk.
	2.	134	132	135	100	112	88	97^{4}	96	98	Increased to 20 minutes.
	3.	138	140	130	86	110	76	97^{9}	95^{4}	98^{4}	Increased to 30 minutes.
	4.	138	134	134	86	104	80	97^{4}	95^{2}	97	Increased to 35 minutes.
	5.	122	134	130	84	110	82	97^{4}	96	98	Increased to 40 minutes.
	6.	136	136	136	82	100	80	97	96	98^{6}	Increased to 50 minutes.
8......	1.	100	104	100	84	96	80	97^{8}	96^{7}	98	15 minute walk.
	2.	104	96	105	84	92	72	97^{6}	97^{4}	98^{2}	Dropped to 10 minutes.
	3.										Cut off exercise.
9......	1.	118	115	118	100	100	88	97^{1}	98^{3}	97^{8}	15 minute walk.
	2.	118	115	116	90	96	84	98	98^{6}	97^{6}	Increased to 20 minutes.
	3.	116	116	116	88	96	86	97^{5}	98	97^{6}	Increased to 25 minutes.
	4.	116	116	116	92	100	88	97^{1}	98^{4}	97^{4}	Increased to 30 minutes.
	5.	118	116	116	94	104	88	97^{2}	98^{2}	98	Increased to 35 minutes.
	6.	117	116	116	90	88	90	97	98	97^{4}	Increased to 40 minutes.
10......	1.	128	134	126	120	100	88	97^{2}	97	98^{5}	15 minute walk.
	2.	128	125	116	96	84	84	98	92^{2}	98^{4}	Increased to 20 minutes.
	3.	125	132	116	96	100	92	98	97^{4}	98^{6}	Dropped to 15 minutes.
	4.	122	120	124	104	104	88	98	97^{6}	97	Held at 15 minutes.
	5.	125	125	120	108	100	92	98^{6}	98	98^{4}	Increased to 20 minutes.
	6.	126	122	116	112	108	96	97	98^{6}	98^{6}	Held at 20 minutes.
11......	1.	130	135	135	84	96	80	98^{4}	98	97^{8}	15 minute walk.
	2.	125	122	125	84	80	80	98^{1}	97^{7}	97^{7}	Increased to 25 minutes.
	3.	135	130	135	80	80	80	98^{4}	97^{8}	97^{8}	Increased to 35 minutes.
	4.	130	130	136	84	84	80	98^{1}	98^{1}	97^{7}	Increased to 45 minutes.
	5.	136	134	134	92	88	80	98^{2}	97^{9}	98^{1}	Increased to 1 hour.
	6.	135	130	130	88	80	80	98^{2}	97^{9}	97^{8}	Increased to 1 hour 10 minutes.
12......	1.	118	122	124	84	87	80	98^{1}	98^{1}	98^{2}	15 minute walk.
	2.	124	122	122	80	80	76	97^{8}	97^{6}	97^{9}	Increased to 25 minutes.
	3.	120	120	120	88	92	82	97^{8}	97^{7}	98	Increased to 35 minutes.
	4.	120	110	125	92	100	78	97^{8}	97	97^{8}	Increased to 45 minutes.
	5.	124	124	120	84	88	82	97^{8}	97	97^{8}	Held at 45 minutes.
	6.	120	118	125	96	92	86	97^{8}	97	98	Increased to 1 hour.
13......	1.	115	118	120	96	96	84	98	97^{8}	98	15 minute walk.
	2.	115	120	116	84	92	75	97^{9}	97	98	Increased to 25 minutes.
	3.	115	115	115	76	96	82	98	97^{5}	98^{4}	Increased to 35 minutes.
	4.	120	122	120	80	84	82	97^{8}	97^{7}	97^{8}	Held at 35 minutes.
	5.	116	116	116	100	100	84	98^{2}	97	98^{4}	Increased to 45 minutes.
	6.	115	115	105	100	88	86	98	98^{4}	99	Took off for few days.
14......	1.	120	130	130	80	76	76	98^{2}	97^{6}	98^{2}	15 minute walk.
	2.	116	122	116	80	76	70	97^{8}	97	98^{4}	Increased to 25 minutes.
	3.	126	116	116	84	84	84	98^{6}	97^{6}	98^{3}	Increased to 35 minutes.
	4.	122	125	120	84	76	82	98	96^{4}	98^{4}	Held at 35 minutes.
	5.	128	116	120	84	72	80	98	97^{4}	98^{2}	Increased to 40 minutes.
	6.	120	120	122	80	76	82	98^{3}	97^{1}	98^{3}	Increased to 1 hour.
15......	1.	148	150	148	116	112	92	98^{4}	98^{9}	98^{9}	15 minute walk.
	2.	150	150	150	92	92	79	98^{4}	98^{4}	98^{2}	Increased to 20 minutes.
	3.										Cut off exercise because of pulmonary condition.
	4.										
16......	1.	126	126	120	76	88	76	98	98	98^{6}	15 minute walk.
	2.	108	124	120	76	84	76	98	97	98^{6}	Increased to 20 minutes.
	3.	120	124	100	80	92	84	98	97	98^{6}	Increased to 35 minutes.
	4.	126	112	112	72	84	76	98	97^{6}	98^{6}	Held at 35 minutes.
	5.										Cut off exercise.
17......	1.	120	124	125	76	100	95	98	98^{4}	98^{2}	15 minute walk.
	2.	116	118	118	80	100	88	98^{1}	98	98^{2}	Increased to 25 minutes.
	3.	116	116	110	100	108	95	98^{3}	97^{2}	98^{2}	Increased to 30 minutes.
	4.	116	115	117	95	96	90	98^{2}	98^{1}	98^{2}	Increased to 35 minutes.
	5.	116	116	116	100	96	95	97^{6}	97^{6}	97^{9}	Held at 35 minutes.
18...... Second Trial of Case 10.	1.	120	124	118	96	96	92	98^{6}	98	98	30 minute walk.
	2.	128	120	115	96	100	96	98^{1}	98^{6}	98^{6}	Increased to 40 minutes.
	3.	126	125	120	92	94	88	98	98	98^{2}	Dropped to 35 minutes.
	4.										
19...... Second Trial of Case 7.	1.	124	132	134	96	96	78	97^{4}	97	98^{6}	30 minute walk.
	2.	120	120	120	82	94	82	97^{4}	96	98^{2}	Increased to 40 minutes.
	3.	125	125	126	80	96	82	98^{3}	97^{4}	98^{4}	Increased to 50 minutes.
	4.	128	130	135	82	94	82	98	96	97^{7}	Increased to 1 hour
20......	1.	142	148	148	90	90	75	98	97^{8}	98^{1}	15 minute walk.
	2.	142	146	146	100	96	70	98	98	98	Increased to 20 minutes.
	3.	132	134	135	85	92	84	97^{8}	97^{3}	98	Increased to 25 minutes.
	4.	144	146	140	80	90	80	98^{1}	97^{4}	98^{1}	Increased to 35 minutes.
	5.	140	145	142	80	94	80	97^{8}	97^{8}	97^{8}	Held at 35 minutes.

		BLOOD PRESSURE			PULSE			TEMPERATURE			
Case No.	Day	Before	After	Rest	Before	After	Rest	Bef.	Aft.	Rest	REMARKS
21......	1.	128	126	124	76	86	65	97^{9}	97	97^{5}	15 minute walk.
	2.	126	122	125	84	74	62	97^{7}	97^{6}	97^{7}	Held at 15 minutes.
	3.	120	116	118	75	70	65	97^{6}	97^{6}	97^{6}	Increased to 20 minutes.
	4.	124	118	120	80	76	68	97^{6}	97^{2}	97^{9}	Increased to 25 minutes.
	5.	120	115	115	70	73	67	97^{7}	97^{1}	97^{8}	Held at 25 minutes.
	6.	118	118	118	79	74	67	97^{6}	97^{5}	97^{7}	Dropped to 20 minutes.
22......	1.	122	126	124	100	108	88	98	97	98	15 minute walk.
	2.	120	122	126	90	100	90	97^{8}	97	98^{2}	Increased to 20 minutes.
	3.	126	128	130	96	110	90	97^{8}	97	98^{2}	Increased to 25 minutes.
	4.	130	120	126	95	100	92	97^{4}	97^{4}	98	Increased to 30 minutes.
	5.	130	115	120	100	112	90	97^{4}	96	97^{8}	Held at 30 minutes.
	6.	128	120	120	88	100	90	96^{4}	97^{2}	98^{2}	Dropped to 25 minutes.
23......	1.	110	110	110	86	88	78	98	98^{4}	98	15 minute walk.
	2.	110	108	109	78	88	74	97^{9}	98^{4}	97^{9}	Increased to 20 minutes.
	3.	108	108	110	78	98	78	98	98^{6}	98^{2}	Increased to 25 minutes.
	4.	108	108	108	76	84	72	97^{9}	98^{2}	97^{8}	Increased to 30 minutes.
24...... Second Trial of Case 1.	1.	132	135	130	85	88	77	98	98^{1}	98^{2}	30 minute walk.
	2.	134	130	125	80	87	72	98^{2}	97^{3}	98^{1}	Increased to 40 minutes.
	3.	140	145	142	88	104	76	97^{3}	97	97^{4}	Increased to 45 minutes.
	4.	135	140	120	92	110	74	97^{4}	97^{4}	98	Held at 40 minutes.
	5.	136	134	136	96	102	80	98^{1}	98^{1}	98^{2}	Held at 40 minutes.
25...... Second Trial of Case 23.	1.	108	110	110	80	96	75	98^{2}	98^{3}	97^{9}	20 minute walk.
	2.	112	106	105	84	92	76	97^{8}	98^{4}	98	Back to 15 minutes.
	3.	115	110	114	78	92	72	98^{4}	98^{7}	98^{2}	Held at 15 minutes.
	4.										
26......	1.	122	115	115	80	98	76	98	98^{6}	98^{8}	15 minute walk.
	2.	122	112	...	84	94	..	98^{1}	98^{1}	..	Cut off the exercise.
	3.										
27......	1.	132	122	122	98	102	86	98	96^{8}	98	15 minute walk.
	2.	134	132	...	100	100	..	97	96^{8}	..	Cut off the exercise.
	3.										
28......	1.	138	138	138	..	..	..				15 minute walk.
	2.	138	141	150	92	98	80				Increased to 30 minutes.
	3.	140	139	150	98	92	76				Increased to 45 minutes.
	4.	142	140	140	96	106	80				Increased to 1 hour.
	5.	140	142	138	88	88	76				Increased to 1 hour 15 minutes.
	6.	142	138	140	88	88	76				Increased to 1 hour 30 minutes.
29......	1.	132	144	142	..	..	..				15 minute walk.
	2.	126	122	127	74	80	..				Increased to 30 minutes.
	3.	126	135	126	66	76	68				Increased to 45 minutes.
	4.	132	134	116	78	80	84				Increased to 1 hour.
	5.	126	130	126	70	30	72				Cut to 45 minutes.
	6.	126	124	136	73	76	75				Repeated 1 hour walk.
30......	1.	146	138	127	..	..	..				15 minute walk.
	2.	142	124	132	120	120	100				15 minute walk at slower pace.
	3.	140	145	130	120	118	96				Cut to 10 minutes—slowly.
	4.	132	145	142	120	120	112				Repeated 10 minute walk.
	5.	142	150	140	116	120	108				Repeated 10 minute walk.
	6.	138	146	142	118	120	104				Increased to 15 minutes.
31......	1.	148	152	158	..	..	..				15 minute walk.
	2.	146	146	135	88	84	72				Increased to 30 minutes.
	3.	145	142	146	80	80	72				Held at 30 minutes.
	4.	150	140	142	80	100	72				Increased to 45 minutes.
	5.	145	140	158	84	80	76				Increased to 1 hour.
	6.	140	142	138	76	80	80				Increased to 1 hour 30 minutes.
32......	1.	164	146	164	..	..	..				15 minute walk.
	2.	146	134	144	118	120	106				Cut to 10 minutes.
	3.	140	150	138	110	104	100				10 minute walk.
	4.	146	146	138	90	98	110				Increased to 15 minutes.
	5.	144	144	152	110	100	100				Repeated 15 minute walk.
	6.	138	144	146	104	104	92				Increased to 25 minutes.
33......	1.	124	130	118	..	..	..				15 minute walk.
	2.	115	114	110	100	120	108				Held 15 minute walk.
	3.	122	117	118	100	100	84				Increased to 20 minutes.
	4.	115	110	115	100	110	100				Increased to 30 minutes.
	5.	122	110	112	88	110	96				Increased to 45 minutes.
	6.	115	114	114	96	96	88				Dropped to 30 minutes.

DISCUSSION.

Herman Schwatt, Edgewater: I have been very much interested in the experiments detailed by Dr. Peters. I think that any scientific series of experiments that throwns some light on the obscure questions in tuberculosis is of great value. One of the questions on which we need a great deal of light is the one of exercise in tuberculosis. As far as the blood pressure control of exercise is concerned, I must confess I have had absolutely no personal experience. At the Sanatorium of the Jewish Consumptives' Relief Society, we have not taken blood pressure readings except on several occasions when Dr. Spivak was carrying on his dietary studies. If I am not mistaken, we found at those times when the blood pressure of all patients was taken, that there was not very much variation from the normal. There are some cases in which the blood pressure is very low. This is considered a bad prognostic sign in patients far advanced in the disease. In some cases the blood pressure readings are unusually high, but we can find an explanation for that in kidney involvement as a rule.

At the Sanatorium we have taken up the subject of exercise. I have been much interested in it and I have found that the pulse and temperature are the best guides, so far as I am concerned, for the amount of exercise a patient can safely take. The blood pressure readings that were taken during the dietary studies referred to were taken after more exercise than fifteen minutes. The great majority of patients, except during the rest hours, are out on the grounds, and I think some of them walk several miles a day, and if exercise had any particular effect on the blood pressure, we should have noticed greater discrepancies on an average than we did. As I have said, I have had no personal experience, but I think it is worth while to take the matter up and see what results we can get. We cannot draw any conclusions from six or thirty cases. We know that the pulse varies considerably in some cases during the twenty-four hours as does the temperature. We may take the pulse reading in the morning and find it seventy, and an hour later, without undue exercise, find it one hundred or higher, and toward evening we may find the pulse high or low. Simply from this I should judge there may be similar variations in the blood pressure without the effect of exercise. I think in order to establish definite conclusions on the subject we must, first of all, study a large number of cases and find out whether the blood pressure under normal conditions varies during the day under rest and with the average amount of exercise a consumptive gets in the institution. I think that would be important to establish first of all. It is my impression that it varies in a similar manner as the pulse does during the course of the day, and we must get some definite data on that before we can decide whether the blood pressure readings are to be taken as an indication as to the amount of exercise a patient can take. Fifteen minutes or half an hour's walk I do not believe is a sufficient test as to the amount of exercise a tuberculous individual may take without injury.

Henry Sewall, Denver: I should like to make simply one statement with reference to blood pressure. I am confident that there is a great deal to be done in the estimation of the pulse pressure, which is the difference between systolic pressure and diastolic pressure, between the highest pressure and the lowest pressure. It seems very curious that there is not a book printed, so far as I know, which brings out the following point. The systolic pressure or highest blood pressure is that which is found in the arteries shortly after the beginning of the ventricular systole, at a time when the ventricles are pretty nearly in maximum systolic contraction. The diastolic pressure is the lowest pressure, and occurs at a time when the heart is at its maximum dilatation. As a pure question of mechanics, it can be shown, without guess work, that the strain on that heart is enormously greater when it is at its greatest tension than when it is at its greatest contraction. Mathematically it is said, I believe, that the strain on the heart increases as the cube of the diameter. The greatest distension is at the time just before the ventricle begins to contract. That registers diastolic pressure. If that pressure is low, the heart has but little resistance to overcome it when it is weakest. If the diastolic pressure is high, the heart has proportionately more work to do the weaker it is. Therefore, if you get a case with a degenerated heart and the diastolic pressure is high, look out for that heart because it is apt to stop in diastole. It cannot be counted on to empty itself. If you get a heart—and I do not care how bad it is—and the diastolic pressure is low, I do not care how high the systolic pressure is, that heart is in pretty good shape. Our grandfathers put the finger on the pulse, and if it was a large pulse, with a low diastolic pressure, they would take comfort. On the other hand, if it is a small pulse, with a high diastolic pressure, I say look out. Therefore, I have learned in my own work to consider that the measurement of the heart strain is the diastolic pressure. Of what use is the systolic pressure? The maximum pressure in the artery determines the strain on the artery.

The integrity or rupture of an artery is determined by the ratio of the maximal or systolic blood pressure to the strength of the weakest part of the arterial wall. Therefore, the systolic pressure determines the danger in the artery; the diastolic pressure determines the danger of heart collapse. That is my own opinion, and I give it to you for what it is worth.

J. E. Gibson, Denver: This subject which Dr. Peters has brought before us is very interesting, and from looking over his pamphlet it strikes me the blood pressure readings are very high, I believe from 150 the highest to 114 the lowest. That brings us to the point of saying that it is like counting the white blood corpuscles in tuberculosis, every man has his own count, and every instrument we use gives a little different blood pressure, and so I account for that difference in our instruments and the difference in my own counting of blood pressure and that of Dr. Peters. In most of my cases in which I thought the blood pressure should be high, it was very low, and I think a very low blood pressure is one of the first symptoms that we may look for in the diagnosis of difficult cases of tuberculosis. I was surprised to see so many cases in which it varied from 148 to 150, which is away above the normal when we come to blood pressure, and we naturally expect by the ordinary methods of testing that the patient must have some kidney trouble, or sclerosis.

I consider the subject opened up by Dr. Peters one that may be a vast help to those who are looking after tuberculosis patients continually, and I have depended mostly upon the temperature and pulse and the general ensemble of the patient as to the amount of exercise that should be allowed.

I believe in most cases it is a good idea to allow exercise, but woe unto the patient if you allow him or her to exercise at the wrong time, and if the doctor can devise a method which will aid us in determining absolutely correctly when a patient should be allowed to exercise, I am sure it will be worth while. I have taken the blood pressure of my patients weekly or semimonthly, but have paid little or no attention to exercise in connection with that pressure, but I think I shall pay more attention to it and hope to get some benefit from it, and I wish to thank Dr. Peters for his suggestion.

Charles D. Spivak, Denver: Dr. Peters' paper will stimulate the sanatoria throughout Colorado to take up this study. It seems to me however, that the following suggestion is in place: If the doctor had taken his six cases and watched their respective blood pressures for six days under normal conditions and later watched the blood pressure of the same six cases for six days under exercise; or if Dr. Peters had taken one group of six cases and submitted them to various exercises, and at the same time taken another group of six cases of the same stage of disease, and watched them under normal conditions without exercise such a procedure would have added to the scientific value of his conclusions. It is advisable that those who take up the study of blood pressure in relation to rest and exercise should follow in the wake of Dr. Peters, and improve upon his method by introducing control experiments.

John F. McConnell, Colorado Springs: The question of rest and exercise in the treatment of tuberculosis is always one of great interest. I have made blood pressure experiments for some time and must say that I have come to no marked conclusion as to the result of them. After reading Faught's book, which helped me considerably, I made fifty experiments along the lines of the paper, just selecting them by lot. I could not determine to my own satisfaction that the method of blood pressure estimation gave me any definite conclusions. In 1905 I had the pleasure of presenting to this society a paper on "The Albumosuria of Phthisis". In the nine years intervening I have carefully done this work, and as a matter of interest, from the standpoint of retrospection, I may say that I am entirely satisfied with this method today in the control of rest and exercise in cases of tuberculosis. Some of you may remember that I stated and showed findings of albumoses in the urine of certain patients suffering from pulmonary tuberculosis. As you all know, a large number of patients have a slight amount of febrility, perhaps a febrile state of 99 to 99.3, not a marked but a slight pyrexia; and that these patients will oftentimes for various reasons take exercise and apparently do well. Again, we know other patients of the same class will take up exercise and will do badly. In these patients in the studies made, not only from my own cases, but from the urines of all tuberculous cases that my colleagues in Colorado Springs would allow me to have, I found in them, without exception, the albumoses, but they were not found in the cases that did well under exercise, and they were always present in the urine of those patients who did poorly with exercise. I think in this test which I reported to the Society in 1905, and which I have constantly watched since that time, we have a method which is of great value in determining which patients should exercise and which should rest, so that I once more commend it to you.

O. M. Gilbert, Boulder: I should like to say in corroboration of the observations of Dr. Peters, that I chanced to have three cases somewhat recently in which after over-exercising there was continuous increased blood pressure after several days. I made a transient note of it, but I have not drawn any conclusions from it so far.

Leroy S. Peters, Albuquerque, N. M. (closing): There is very little I wish to say in closing. I did not put forward this method as the only method of controlling exercise in consumptives. Like all other means we have at our command, it is one out of many that may prove of value. We must take into consideration all factors in the case, and not depend upon our blood pressure findings to the exclusion of everything else. All things must be considered relative to the individual patient under observation.

Dr. Schwatt spoke about one thing to which I wish to refer, namely, the small amount of exercise that I started these people on not affecting them in any way. I disagree with him. We all know that the slightest exertion may be productive of harm in patients with tuberculosis. There is not one of us who is caring for consumptives daily but knows that a great many fever cases will fail to respond to rest in bed in the ordinary manner, the fever remaining high, and yet if you take those patients and put them at absolute rest, treat them as typhoid cases, their temperature will go down to normal after it has been up a long time with the ordinary rest in bed methods. I feel firmly convinced that fifteen minutes walk to begin with in the average consumptive is a safe starting point, because if you allow a patient to take a greater amount of exercise than that in the beginning you may do untold harm and throw the patient back, so that his days of exercise would be far off. You cannot begin too carefully with any method of treatment in tuberculosis.

Dr. Sewall's reference to pulse pressure is without question a timely one. In straight scientific work, there would be no question that the pulse pressure would be a better guide than the systolic or diastolic alone. In practical work, unless you have a large laboratory force, it would be impossible to take the pulse pressure, and the average machine we use for our work would not give the diastolic readings. Unless you use the auscultatory method or the Erlanger instrument the readings would be faulty. It was a coincidence that the table used as an exhibit showed high blood pressure cases. My average blood pressure finding, based on 600 cases, is about 130, for all classes and all ages combined, including the kidney cases and all. So I imagine the blood presure, eliminating the kidney cases, would be around 124 for all ages. In the cases I have appended, you will find the average blood pressure is not as high as that.

TYPHOID SPINE.*

H. W. WILCOX, M. D., DENVER.

Report of a Case.

Among the sequelae of typhoid fever one of rather infrequent occurrence is a painful affection of the spinal column designated "typhoid" spine, or sometimes called typhoid spondylitis.

This condition was first clearly described by Gibney in 1889. Since that time ninety-four cases have been recorded in medical literature, which would bear out the statement of its relative infrequency.

The first symptom complained of is pain. This may come on during the latter part of the febrile period, is caused by the slightest movement of the body, and may be very severe in character. More often the spinal symptoms do not become manifest until the period of convalescence, and indeed many of the patients resume their occupation before the pain begins, when, after subjecting the spine to some unusual strain or slight trauma, symptoms appear.

The lumbar region is most often affected, the probable reason being that this portion of the spine undergoes most weight bearing strain; it has also been pointed out that the amount of cancellous tissue, which is the tissue in bone most vulnerable to infection, is much greater in these than in either the dorsal or cervical vertebrae, and also that they are in close proximity to the lumbar lymphatic glands.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

The pain may be localized over the affected vertebrae, accompanied by tenderness and sometimes by swelling, or it may be radiating in character, referred to the lumbar muscles or to the lower abdomen or thighs. It may be constant or paroxysmal, brought on by movement, or spontaneous. Sensory symptoms such as anesthesia, paresthesia and hyperesthesia have been recorded, but these are unusual and are commonly only of short duration.

A few of the reported cases have been marked by a rise of temperature, and Quincke believed this to be an essential diagnostic point.

Deformity has been noted in only about one-third of the cases, and this has given rise to considerable dispute as to whether or not an organic lesion is present in these cases. The deformity is usually a kyphosis, slight in extent. Some of the cases show only obliteration of the normal forward lumbar curve. There is decided limitation of motion, especially of flexion of the spine. No case so far recorded has come to autopsy, so that the exact nature of the pathological process is not definitely known, but from the study of the symptoms and signs, aided by a considerable number of X-ray pictures taken during recent years, the general opinion is that the condition has an organic basis. Gibney was of the opinion that the symptoms and signs were the result of a periostitis and perichondritis. The three cases reported by Osler were considered by him as of the nature of a neurosis. Several observers have demonstrated the presence of the Eberth bacillus in the congested cancellous tissue of the vertebral bodies of patients dying of typhoid fever, and it is the opinion of Wullstein that it is the grouping of the bacteria at the anterior portion of the bodies, and consequent absorption of bone from inflammatory action, that causes the slight kyphosis. Suppuration has been noted in only two cases. McCrae reported two cases in which the X-ray pictures showed bony deposits in the lateral ligaments and extending apparently into the intervertebral discs.

One almost constant finding of the X-ray pictures taken has been the disappearance of one or more intervertebral discs with a consequent approximation of the vertebræ. This would account for the obliteration of the lumbar curve, and if it were accompanied by inflammatory changes in the anterior and lateral spinal ligaments an actual backward prominence could be caused, even though there had been no absorption of the bone substance of the vertebrae. The duration of the condition varies between one month and one year, varying according to the degree of the destructive process. It may be decidedly shortened by proper orthopedic treatment.

In the very acute stage during the febrile period resort to anodynes may be necessary. The treatment called for, as in any other affection of the spine of a destructive nature, is protection and immobilization.

In a bed patient this may be accomplished by the use of a firm mattress and a Bradford frame or plaster bed, putting the spine into a slightly hyperextended position. In the cases occurring during convalescence a plaster corset or accurately fitted spinal brace will usually relieve the symptoms. Some have claimed recession of the slight deformity under such treatment, but it is probable that this apparent result has been due to the improved nutrition and increase of flesh which follows typhoid fever.

The diagnosis should not be difficult if there is a clear history of typhoid fever. Potts' disease of the lumbar spine would have to be excluded. This would be established by difference in the histories, by persistence of the tuberculous process over a longer period, and by the presence of abscess in a considerable percentage of the tuberculous cases with deformity of the spine in Potts' disease, except in those cases recognized and properly treated at a very early stage.

The prognosis is good, a complete cure being the rule except for the slight deformity which is present in some cases.

My apology for presenting a brief summary on this subject is the opportunity to report a case observed during the past summer at the City and County Hospital in Denver. This case corresponds rather closely to the description of the cases of mild severity.

A. S., age 23, Swede. His family history was negative, no tuberculosis. Nothing important in patient's history until fall of 1913, when he entered a hospital in Salt Lake City where the diagnosis of typhoid fever was made. He had a continued fever for some weeks, during which time he began to have pain in the lower part of the back. Patient describes the pain as being very severe, paroxysmal, at intervals of every five minutes at first, felt over the left lateral lumbar region. This continued until the latter part of November, gradually abating when the patient got out of bed and was up for two weeks. This caused an aggravation of the pain and he was put to bed, where he remained for three months with gradual improvement. He was discharged in February, 1914. Entered the County Hospital, Denver, in April, 1914, at which time examination showed a fairly well nourished subject of medium height. Got out of bed with difficulty. Examination of the spine showed the dorsal region normal, the lumbar curve obliterated, with slight tenderness to direct pressure over the second and third lumbar vertebrae. Upon testing the flexibility there is marked limitation of flexion and of lateral bending in the lumbar region. Patient picks up object from the floor by flexion of the legs, the spine being kept rigid. X-ray picture shows disappearance of the intervertebral cartilage between the second and third lumbar vertebrae, with rarefaction of the bony substance of the second and third vertebral bodies. An accurately fitting plaster of Paris jacket was applied, and the patient kept in bed for several weeks, during which time the pain in the back gradually subsided. After his discharge from the hospital the support was worn for two months. The spine became more flexible, and in July he was able to discard the plaster jacket. A letter received within a week (September, 1914) states that he still has some stiffness of the spine, though he is engaged in active work.

216 Metropolitan Building.

DISCUSSION.

George B. Packard, Denver: I have always regarded these cases as simply infectious arthritis of the spine, and some years ago I reported several cases. Two or three of those had some deformity, and I accounted for it in this way: Probably through muscular spasm the spine was brought into an abnormal position, and then with the exudate and thickening, the spine being held in that position gave the appearance of more or less deformity. That does not entirely disappear, but it does not increase to amount to very much. As Dr. Wilcox remarked, all these cases yield invariably to absolute fixation. You will probably remember that Dr. Osler refers to these cases in his book as being neuroses. I can only account for that from the fact that there are many of these cases following typhoid fever who suffer more or less back strain and relaxation. These patients have much pain and closely simulate typhoid spine, but I think they are an entirely different class and due to relaxation from being in bed for many weeks.

TENDON TRANSPLANTATION FOLLOWING INFANTILE PARALYSIS.*

C. G. McEACHERN, M. D., DENVER.

In the early days of treatment of acute anterior poliomyelitis there was little done for the patient, but of late quite a lot can be accomplished in preventing deformity and in making the patient comfortable.

In this short paper I will deal mostly with the treatment of the lower limbs, as that is the part of the body most frequently affected. The most difficult deformity we have to deal with following infantile paralysis is the dropping of the foot at the ankle joint. In a large number of cases this is not due to paralysis of the muscles, but to the lax way the child has been treated in not holding the foot at a right angle for several months, either by splint of the Volkmann variety or a posterior plaster of Paris splint, arranged so that it can be easily removed in order to give the limb its daily massage and such other treatment as we find necessary.

The return of power is always very slow, and we have to deal with what is commonly known as shortening of the Achilles tendon, although it is known that we do not have a shortening of the tendon but of the muscle fiber alone. We must not only prevent deformity of the foot and ankle, but should also look after the knee, deformity of which can just as easily be corrected by either splint or by weight and pulley traction. In a great many cases several or all of these deformities will occur; then it is necessary to resort to radical treatment.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

If the deformity is of a recent nature, forcible manual correction with an anesthetic will prove beneficial in a large number of cases. Following this it is necessary to place the part in a removable cast or brace, which must be worn until recovery is complete, or until it is time to do a radical operation. It is also necessary that the patient should be taught the importance of bringing the weakened muscles into use each day.

In small children one should devise some kind of game in which they can join, and in that way stimulate their interest and bring the muscles into play. Massage is of great value.

Electricity has its place, but in my experience it has never done what others claim for it. Yet it is necessary to keep up some line of treatment until the probationary period has passed, and, as there is nothing definite as to when this has taken place, it is always wise to postpone radical operation for two to two and one-half years, except in some rare cases where we are unable to control the deformity by brace or cast, and it may became necessary to resort to radical operation before the time mentioned.

Correction of Late Deformity.

If the patient is a young child it is usually not necessary to do more than lengthen the Achilles tendon; this should always be done before the radical operation is performed. With congenital clubfoot, transverse tenotomy is as a rule satisfactory; still I always do an open lengthening of this tendon, owing to the fact that in one case where I did a transverse tenotomy, I had a loss of function due to too great lengthening of the tendon.

There are many methods of lengthening the tendons, but I use only one, the simple step method; suturing with fine silk.

In pes equinus it is always wise to lengthen the toe flexors; this should be done by simple division of the tendon while the toe is dorsally extended.

Knee contractures are very much more difficult to treat than foot, as in straightening the limb we almost always endanger the blood vessels and nerves. If the deformity is of long standing the femur should be shortened. In contractures of the hip, forcible stretching is as a rule satisfactory, but some cases require a more radical procedure.

The deformities of the spine have as yet received very little benefit, if any, from operative procedure, and the majority of surgeons are content to confine themselves to Abbott's method of treatment, which has given the most universal satisfaction.

The problem that has given us all more trouble than any other one thing is to retain permanently the correction made by operation. It is so well known as to be hardly necessary to mention, that a single correction of any deformity following infantile paralysis will not effect a permanent cure. No matter whose technique you have followed, we shall most assuredly have a relapse as soon as we remove the brace or cast, and unless the patient will be content to wear a brace the rest of his or her natural life we must then look to tendon transplantation, which has been demonstrated by Velpeau, Ryerson, and many other operators to be the only means we have of effecting a permanent cure. Velpeau's method of suturing a part of the tendon which has been split from a healthy tendon into the paralyzed tendon or muscle which it is intended to strengthen, has only been successful in the hands of a few operators, and only in the upper extremity, for if used in the lower where it is subjected to much pressure or stretching we find that it soon loses its usefulness. Several operators report excellent results from attaching the tendon to the periosteum. It has been much more satisfactory in my work to suspend the foot at a right angle with a heavy braided silk cord.

Technic.

A curved incision downward is made over the metatarsal bone, a hole is bored at the base, and through it is passed a braided silk cord previously boiled in a 1/1,000 solution of mercuric chloride. The tendon of the tibialis anticus is then exposed at its insertion into the cuneiform and metatarsal, and a small slit is made in the sheath. The probe carrying the silk is passed into the tendon sheath and forced upward under the annular ligament until it reaches a point on the tibia two or two and one-half inches above the ankle joint. Then a curved incision is made over the tibia at this point, and the silk is brought out through it.

A similar operation must now be performed on the outer side of the foot. A drill is passed through the fifth metatarsal, and a similar silk cord is passed through the hole thus made. The silk is then threaded into the probe, passed up the sheath of the peroneus tertius tendon, and brought out at the tibial incision. A hole is then drilled into the crest of the tibia, and one cord of silk is passed through the drill hole. The foot is now pulled into position by tightening the silk, which is tied with a triple knot. The incision is then closed and a plaster of Paris cast applied. The latter should remain ten to twelve weeks.

It is my opinion that every case of infantile paralysis can be benefited by surgical procedure, if we are able to secure live muscle or tendon to transplant.

340 Metropolitan Building.

DISCUSSION.

Leonard Freeman, Denver: I think attention should be called to three cardinal principles in the transplantation of tendons that were not mentioned in the doctor's otherwise excellent paper. In the first place, muscular balance: It is not sufficient merely to transplant tendons, but the balance of the entire foot must be carefully considered, and many failures in tendon transplantation are due to a failure to consider this general muscular balance. Transplantation must be done by studying the case anatomically and electrically, and by having the patient use voluntary movements. It is not an easy matter to calculate this balance perfectly. Another cardinal principle is that the tendons must be transplanted with a certain amount of tension. It does not do merely to take a tendon from one part of the foot and sew it on another tendon, but it has to be sewed on under tension. That is exemplified by many cases the surgeon sees. I recall a case in which the tendon of the finger was torn in two. It grew together again itself, but it was too long, and the patient could not use the finger. It was necessary to operate and obtain tension. A muscle does not recover its power to contract properly unless it is put on under tension. A third cardinal principle is that one must preserve the line of tendon suture from contact with the skin by covering it with tissue. For this purpose one uses the tendon sheath, if possible, or a flap of fat, or one may use a free transplantation of either fat or fascia.

It has been found recently that superficial fascia with its contained fat answers the purpose better than fascia lata or any artificial membrane, like the Cargile membrane. Fat produces the best artificial tendon sheath. Such a flap of superficial fascia with fat is wrapped around the junction where the tendons are sewed together. When these three principles—the balance of the muscles, the tension of the muscles and the preservation of the suture line—are observed, we are likely to secure fair success.

I do not agree with the writer of the paper that every case of infantile paralysis is benefited by tendon transplantation. In some cases the disappointments are bitter.

Charles G. McEachern, Denver (closing): I heartily agree with Dr. Freeman in the three cardinal points brought out by him. These were not touched upon, and they have been brought out and referred to by so many writers that I did not consider it necessary to refer to them in my paper, nor did I consider it necessary to rehash the whole technic.

SYMPTOMS OF DYSPEPSIA ASSOCIATED WITH SURGICAL LESIONS.*

C. E. TENNANT, M.D., F.A.C.S., DENVER.

Dyspepsia, or impairment of the power or function of digestion, occurs in many forms of disease. While the symptoms may be quite similar in many varied conditions, there are certain characteristics to be found in the surgical lesions which are often suggestive of the source of the trouble.

Usually, the surgical dyspeptic gives a history of patience and long suffering seldom associated with other lesions. The history has been one of slow development, perhaps at first with nothing more than labored digestion, some bloating and eructations, but sooner or later developing into a group of symptoms quite definite in character, and often having a certain periodic relation to the intake of food.

Pain during some part of the digestive period is a common accompaniment to almost all of the surgical lesions. The exception would probably be the early ulcer-free carcinoma of the stomach, especially about the antrum, where stomach motility only might be impaired; or in the cases of so-called silent gall-stones. With these exceptions we may expect to find pain as one of the most common and characteristic of the symptoms of the surgical lesions which give the clinical manifestations spoken of as dyspepsia. Pain occurring in the epigastrium immediately following the ingestion of food, or during the period of digestion, is most commonly associated with gastric ulcer. We must, however, bear in mind that angina pectoris may produce the same group of symptoms, such as flatulence and belching, associated with epigastric pain following the meal. Investigation of the blood pressure, however, should reveal the obvious presence of angina pectoris.

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*Read before the Medical Society of the City and County of Denver, May 4, 1915.

Ulcer in the pylorus and duodenum is usually associated with pain which occurs from three to five hours after eating. These stomach and duodenal ulcers are always associated with hyperacidity, and it is presumed that it is the acid chyme flowing over the granulating ulcer surface which provokes the pain. The entrance of food into the stomach neutralizes the acid content, and the pain is expressed several hours after ingestion, or after the food content has passed on.

While cancer of the stomach in its earliest stages may be painless, it expresses itself through other commonly recognized symptoms, depending upon its location in the stomach wall. If located in the fundus of the stomach or near the lesser curvature, and in its early stages, there will be little expression of gastric symptoms. On the other hand, however, if located in the antrum of the stomach or near the pylorus, we then are likely to find such common symptoms as are associated with impaired motility, and with inhibition of the secretions of the peptic and acid glands. As the malignant growth develops in the stomach wall, however, necrosis and ulceration of the mucosa occurs, a definite malignant ulcer is formed, and we have associated with heart-burn, nausea and vomiting the symptom of pain. When, however, cancer has slowly developed upon an ulcer base, our clinical symptoms are somewhat different; for pain is then one of our earliest symptoms, and unless operative interference occurs early, there will be a long history of persistent stomach trouble, often with certain short periods of intermission; these intermissions being periodic and seasonal in character, when non-acid food predominates.

Gall-stones often produce pain squarely in the pit of the stomach. The attacks are frequent and some of them are localized in the right hypochondrium, although in the early stages we may have no such symptoms. Associated with gall-stones the usual symptoms are heart-burn, stomach distress, nausea and not infrequently vomiting; yet there are cases of gall-stones (so-called "silent") that go for many years without pain. For according to some authorities, pain associated with gall-bladder lesions is due to the effort on the part of the gall-bladder to expel one or more stones from its fundus through the cystic duct. Jonas suggests that the cystic duct contains a sensory nerve filament, and that it is when the moving stone impinges upon this area that pain is induced. Others believe that pain occurs whenever there is unusual pressure associated with stones, or in empyema of the gall-bladder. Therefore, in contradistinction to regularity of pain with food intake, which is found with ulcer of the stomach and duodenum, we have no definite time for the onset of pain associated with gall-stones and other gall-bladder lesions.

While pancreatitis is almost always associated with gall-bladder disease, its dyspeptic symptoms may occasionally, though rarely, be expressed quite independently of the latter. Although this possibility is rare, and although the dyspeptic symptoms associated with stomach and gall-bladder lesions are reasonably well interpreted today, they are by no means an open book.

We have the test and bismuth meals and skiagrams to aid us in our better understanding of the stomach symptoms. We have reasonably good access to the gall-bladder area by means of palpation, but with the pancreas buried deep in the abdomen, knowledge regarding it is quite a different matter. Here it is necessary to make one's diagnosis largely by the process of elimination; but since pancreatitis and gall-bladder lesions are so frequently associated, when our elimination has been completed there is little left upon which to base a diagnosis of the former.

The usual group of dyspepsia symptoms resulting from chronic pancreatitis might be enumerated as follows: Pain occurring in the epigastrium and back, very sharp in character, beginning between the shoulder blades and radiating to the front about the gall-bladder area; the attacks lasting for days at a time, sometimes up to a week, followed by soreness in the upper abdomen, and at times associated with jaundice. These attacks of pain may be ushered in with chill and rise of temperature, and uncontrollable vomiting. The bowels may or may not be regular, and the stools may or may not be clay-colored. The urine is usually very dark and concentrated.

There are other lesions which should be considered in connection with dyspepsia, and their clinical symptoms are best expressed by the terms "impaired stomach motility" or "stasis" and "pyloric spasm." These lesions are sub-acute and chronic appendicitis, Lane's kink and other irregularities of the intestines, and Jackson's membrane or the pericolitis of other writers. These lesions provoke labored digestion, distress, nausea, vomiting and not infrequently pain; the last symptom being no doubt the result of pyloric spasm, or of hyperacidity of the gastric juice. The hyperacidity sooner or later develops gastric or duodenal ulcer, and we then have one of the so-called vicious circles.

Too often the surgical dyspeptics are placed upon restricted diet, gradually starving them and developing an anemia, which in itself provokes dyspepsia. We then not only have a surgical lesion to contend with, but an anemia, the result of starvation diet, and this makes such a patient a very poor surgical risk. Deaver has recently said that "the most important message the surgeon has for the profession is the necessity of referring intractable dyspeptics to the surgeon." Cabot, in his recent work on differential diagnosis, is quite to the point when he says: "The greatest improvement I have seen in the management of stomach cases in the last twenty years has been the recognition of causes outside the stomach and the special attack upon these causes. Next to this, the greatest improvement has been through giving up our habit of making strict narrow diet lists which result in more or less chronic starvation. Whatever we do for gastric patients we must not starve them. We must get in food enough to maintain the caloric needs of the body, and the greatest error in the past has been the failure to recognize this necessity."

Probably one-half of the cases of dyspepsia which occur are due to surgical lesions. Inasmuch as it is often necessary to reach these lesions through surgery before it is possible for these patients to take the required amount of nutrition, it behooves one to make the utmost effort in arriving at a correct diagnosis, even at the cost of an exploratory operation, and then apply the remedy at once, in order that proper feeding may be promptly resumed.

612 Empire Building.

SOCIAL SERVICE WORK IN RELATION TO THE DISPENSARY*

MARY R. STRATTON, M. D.
DENVER.

Dispensary work has many discouragements to one who wishes to do his work well and to get the most out of it. The patients are often hard to handle, unappreciative, or careless in carrying out treatment. They frequently do not do their part in returning until the diagnosis is perfectly worked out.

By using more social service work, a dispensary could rectify many of these conditions and become more efficient.

The beginning of organized social service in connection with hospitals or dispensaries is only a little over nine years old in America. The first movement along this line was in 1901, by Dr. Emerson of Johns Hopkins Hospital. This was in the form of a society organized to give the student an idea of the conditions under which the poor live, work and think, and to enable the students to understand that there is another side to medical cases besides mere book knowledge. So this was not exactly social service as it is now organized.

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*Read before the Professional Women's Club of Denver.

The first real experiment of this kind, instituted by Dr. Cabot in the Massachusetts General Hospital, began in 1905. The visiting nurses were employed to follow up cases from the dispensary. Since that time Dr. Cabot has done much and written much along this line.

For eight years a social worker has had charge of the cases that needed attention in the neurological department of the Massachusetts General Hospital. This proved of so much benefit that two years ago a similar worker was placed in the clinic. During the first year after this, 315 patients received social service aid. Those who needed such care were helped in obtaining admission to institutions or hospitals. Others needed social supervision in their homes, as instruction in hygiene, follow-up work, or, at times, financial aid. Another part of the work was social investigation of cases and their surroundings; thus conditions contributing to nervous invalidism, such as improper environment, etc., were inquired into.

Bellevue Hospital began its first experiment in 1906. Now there are thirty social bureaus in New York City alone.

In October, 1907, through the efforts of the late Dr. John Musser, social service work was started in connection with the University of Pennsylvania. Seven years ago they had one worker. One year ago they employed seven paid workers and a stenographer, besides having forty volunteers, of whom ten were graduate nurses.

The work of social service was started in the Hospital of the University of Michigan at Ann Arbor about three years ago.

In connection with the Boston dispensary there was at first a department or office to which physicians sent those who needed help. Action thus depended upon the ability, interest, inclination or leisure of the physician. The requirements would change with the change of service of the physicians. Later the social service worker was placed in the clinic and coordinated her work with the work of the doctor. Both were thus enabled to do better work. Dr. Cabot says: "Physician and social worker must do team work if they are to succeed."

Before the social worker began her work in the Boston Dispensary, 63 per cent of the cases in the medical clinic came but once. The same was true in the genito-urinary and mental departments. Little or nothing could be done for these patients under such circumstances. In many instances not even a complete diagnosis was possible. After the social worker was placed in the clinics, the average of visits was raised from one to five. This was accomplished by means of letters and house visits, and has enabled the physician to make a better diagnosis and to give more permanent help, while the social worker has attended to having the patient carry out the physician's directions.

In the children's clinic of the Boston dispensary, by means of a postal card system of communicating with patients who did not return, the number of visits was raised from 2+ to 4+. In the skin clinic, where the social worker sees every patient, 57 returned in answer to 58 letters. In the mental clinic, during a period of three months without a social worker, there were 46 per cent of deferred diagnoses. Since that time, the percentage has fallen to six. The help afforded by the social service worker in the diagnosis was by bringing the patient back.

During three months' service in the medical clinic without a social worker, out of 30 patients advised to have operations, only five did so. In the gynecological clinic with a social worker, everyone of 20 so advised had the operation done and returned to the doctor afterward so that he might see the result. The social service here consisted in persuading the patient, seeing relatives and friends, arranging for care of families during the patient's absence in the hospital, securing convalescent care, and adjusting the work to the post-operative conditions.

In the eye clinic, formerly 30-60 per cent did not return for glasses when they had been prescribed. With social service work this percentage has dropped to four.

The Boston dispensary has certainly demonstrated a great increase in efficiency of service. Elizabeth Richard says:

"The social service work is a means of preventing certain uneconomic features of the out-patient's department; first, through prevention of irregular attendance; second, through prevention of failure to carry out treatment; and third, through control of channels for spread of infection."

The work of the social service worker in the dispensary or hospital is as varied as the different departments. Gonorrhea, syphilis and tuberculosis should be followed up into the homes. Patients should be persuaded to return for treatment, especially those with gonorrhea or syphilis, and should be taught the results of not doing so. They should also be taught the contagiousness of these diseases and how to care for themselves and others, including the use of separate towels and washcloths, and of drinking cups and dishes, and precautions in the use of the common bathtub. Some arrangement should be made for sleeping alone. When one case occurs in a family, other members should be questioned or examined, especially in cases of vulvo-vaginitis.

Young pregnant girls should be looked after and provided for and given a chance to redeem themselves.

Mothers should bring their children back. If they are not interested, a letter or visit from a social worker may make them see the necessity. When the mothers are indifferent about carrying out the physician's orders, the social worker should impress them with the importance of doing so. They should be instructed as to the care of the child and how to prepare its food. The value of fresh air and cleanliness should be taught them, so that when the child is cured it will not return again as a patient in a short time. Sometimes the proper food will have to be supplied or help given to the family in some way, so that they may get it themselves. Sometimes planning their meagre finances so that good instead of bad food may be bought with those funds, may be necessary; or work may have to be provided for the grown members of the family.

In cases of infectious diseases the social worker should be a great aid, keeping others in the neighborhood from becoming infected.

In general medicine and in a nervous clinic there are often cases which need the social worker's care. Often the prescription and directions of the doctor are useless on account of environment and the obstacles the patient has to meet in his or her home. Here the social worker can be of great benefit in teaching hygiene, proper living and good habits. In chronic cases, as cardiac cases, planning easier work may solve the question, so that when cardiac compensation has been regained the patient can follow some occupation that will require less exertion. Nervous cases may be helped by encouragement and relief from worry, and sometimes by the proper kind of work.

I have been much interested in an article by Mary Irving Husted on the relation of work to social service. Miss Husted is director of the industrial department at Clifton Springs Sanitarium, New York. She says that in the last ten years sanitaria and hospitals in many parts of the world have come to include industrial departments in their equipment. This shows the value of hand work for patients. Many nervous, tired and poorly-nourished patients could be greatly helped by encouragement, planning their work so that they would get more rest, advising the proper kind of food and teaching the value of fresh air and hygiene, or often by changing their occupation to one more suited to their strength or ability. They could then with the proper medication of the physician become happy and well while still continuing to work. It is utterly useless to prescribe a vacation for some of those people, since they can not take it.

There is another line in which the social worker might be very useful. Dr. Cabot spoke of industrial diseases in his annual oration before the Maine Medical Association last summer. He said that when a case of lead poisoning came into the hospital, it meant that more might come from the same source; therefore the social worker should obtain the history of the man's work, what he has been handling, and all about his daily job. The man should be taught how and where he got his poisoning and how to prevent it in the future. When he leaves the hospital or dispensary he should be followed to his home and educated so that he will not need to return. Others should be found who are carrying on the same work, and they should be taught how to avoid the same disease. This work is often very discouraging, as many would rather take the risk than bother with the trouble required to avoid occupational disease. The best work will probably be in educating the young and new worker so that good habits may be formed.

The social service department of the Massachusetts General Hospital has issued a circular to all painters and printers in the state telling them plainly how they obtained lead poisoning and how to avoid it.

Dr. Cabot spoke also of those who were handicapped through the results of industrial accidents. A man may be able to work, yet the loss of a limb, eye, hearing, or other function makes him unable to find employment. Some of these people get work, but others cannot do so without help. There is a woman worker who is informed as to the industries in and about Boston to such an extent that she knows where many of these handicapped individuals will fit. Her salary is $1,200.00 a year; and she has been able to obtain for handicapped men, those who had been out of work indefinitely before that time, wages amounting to $6,500 in one year.

If we think of the amount of work required to effect this end, we realize how much knowledge the worker must possess. Dr. Cabot has said somewhere in his writings: "The position of a social worker is that of a teacher." Her training and experience must be varied; she must possess a sympathetic nature, and she must have business and practical ability. She must know where to look for industrial diseases and must have training in hygiene, sanitation, and care of the sick. She will have to know how to cook to be able to teach the art of cooking with the expenditure of the least amount of money for wholesome food. She should have a wide business acquaintance in order to obtain help in finding suitable work for those patients who are able to work. She should have acquaintance with people of wealth in order to obtain funds when they are needed. She should know all the charities and institutions in order to fit the patient into the proper one. Under such educational methods as these, much sickness and resulting expense to our hospitals and dispensaries can be avoided; and the poor can be aided in such a way that our charities need not be pushed to the utmost. At the same time much can be accomplished for preventive medicine and many early cases may be cured in their incipiency.

428 Majestic Building.

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The Value of Social Service Work in Hospitals as a Part of Efficient Diagnosis and Treatment, by R. C. Cabot, Maine Med. Assn. Jour., July, 1914.

The Social Worker's Educational Influence in the Community, by G. B. Underwood, Boston Med. and Surg. Jour., April 30, 1914.

Neurological Social Service, Mass. Gen. Hosp., by Margherita Ryther, Boston Med. and Surg. Jour., March 19, 1914.

Social Service: Contribution to Economy and Efficiency, by E. V. H. Richards, Mod. Hosp., Jan. 2, 1914.

News Notes

The San Francisco meeting of the A. M. A., was attended by 48 Colorado members. These included 26 from Denver; 4 from Pueblo; 3 each from Canon City and Colorado Springs; 2 each from Boulder, Grand Junction and Sterling, and 1 each from Castle Rock, Cedaredge, Greeley, La Junta, Monte Vista and Silverton.

Both the Colorado delegates, L. H. McKinnie of Colorado Springs and H. R. McGraw of Denver, were present at the San Francisco meeting. Dr. McKinnie also acted as a member of the reference committee on Legislation and Political Action.

Dr. Gerald B. Webb delivered an address on tuberculosis as part of the program for health conservation day lectures at San Francisco, on June 23rd.

Dr. Rodman's lecture on cancer, at the Brown Palace hotel on June 14th, under the auspices of the Denver County Medical Society, was listened to with much pleasure and interest by a large audience, many of whom had come from towns outside Denver for the occasion.

Dr. Rodman and Dr. W. W. Grant have long been close friends. While in Denver, Dr. Rodman and his wife and daughter were the guests of Mrs. and Dr. Grant, the latter of whom had, in his capacity as President of the Denver Society, secured Dr. Rodman's promise to address the Society.

At the San Francisco meeting, Dr. G. A. Moleen was made chairman of the section on Nervous and Mental Diseases for the coming year, and Dr. S. P. Gengenbach was elected secretary of the section on Disease of Children.

A party made up of 125 physicians and surgeons and their wives and families, on their way to San Francisco, was entertained at Colorado Springs by a committee of the local Chamber of Commerce, headed by Dr. A. C. Magruder and a medical committee consisting of Drs. F. L. Dennis, W. V. Mullin and Alexius Forster. The visitors were taken in automobiles to Broadmoor and to the Union Printers' Home, as well as to various hospitals.

The third annual Sociological Conference, under the auspices of the Extension Committee of the University of Colorado, was held at Boulder during the week July 4 to 10. The Public Health Section Committee consisted of Drs. Jacob Campbell, P. S. Hunter, Oscar Hayes, Crum Epler and O. R. Gillett. Papers were read by Drs. J. W. Morgan, J. G. Wolff and J. W. Amesse, and the following were also on the program: Drs. O. Lyons, F. R. Coffman, S. R. McKelvey, R. W. Corwin, C. W. Plumb, M. Ethel V. Fraser, O. D. Wescott, C. T. Burnett and B. A. Gooding.

The campaign for funds for the Children's Hospital resulted in promises amounting to about $208,000.

The Editor of the Denver Express calls attention to the fact that his newspaper has refused all medical advertising since the first of the present year. Some other Denver newspapers have certainly not lived up to their pious promises concerning objectionable medical advertisements.

On the 6th of July Dr. C. N. Meader was married at Colorado Springs to Miss Marian L. Learned. Dr. and Mrs. Meader will be at home after the 1st of October at 1540 Grant Street, Denver.

Dr. C. E. Tennant returned on June 10th from the meeting of the American Surgical Association at Rochester, Minnesota. The meeting was made especially interesting by the presence of a number of pan-American visitors.

Dr. N. P. Wood, now practicing eye, ear, nose and throat in Seattle, Washington, and a 1907 graduate of the Denver and Gross College of Medicine, spent some time in Denver in the latter part of June.

Dr. J. W. Calkins, of the same class in the Denver and Gross College, writes from New York that he is studying with a view to taking up eye, ear, nose and throat work.

The State health department has received word of several cases of tick fever in Rio Blanco and Moffat counties, and at Montrose. U. S. Surgeon L. D. Fricks is investigating the matter.

Dr. John G. Wolff, head of the Pueblo health department, is reported in the newspapers as strongly advocating the use of the advertising columns of the daily papers for the spread of knowledge concerning disease.

In connection with the recent arrest of a Denver physician on the charge of prescribing drugs for habitual users, the City Health Commissioner stated that he had evidence tending to show that the accused physician prescribed approximately 3,600 grains of morphine and 800 grains of cocaine in fifteen days—twice the amount of these drugs used at the County Hospital in a month.

Dr. Ella Meade of Greeley recently spent several weeks in St. Luke's Hospital on account of injuries received in an automobile accident.

Dr. R. W. Corwin of Pueblo was made Vice-President of the American Academy of Medicine at its fortieth annual meeting, in San Francisco.

Dr. and Mrs. J. C. Carlson of Eaton, and Dr. and Mrs. Hughes of Ault spent several weeks in a visit to the Pacific coast.

Dr. J. E. Peairs has been re-elected President of the Pueblo Commerce Club.

Dr. M. A. Spangelberger had the unusual experience of witnessing, from his office window, the theft of his own automobile from in front of the Nevada Building, Denver.

Dr. A. J. Morehouse of Idaho Springs was recently called to Battle Creek, Mich., on account of the serious illness of his mother.

Dr. and Mrs. Hepler of New Castle are away on a two months' visit to California.

Dr. and Mrs. N. H. Chapman of Monte Vista are away on a trip to Honolulu.

Dr. W. C. Finnoff will be away from Denver for a two weeks' vacation during the earlier part of August.

Dr. Jolley's wife received a cablegram on June 3rd, stating that her husband had arrived safely in Belgrade, Serbia.

The following Denver physicians were recently called upon by the War Department at Washington to report their readiness to serve in the event of hostilities in Mexico: H. R. McGraw, W. W. Grant, A. J. Campbell, J. W. Amesse, C. Powell, A. J. Markley, C. A. Powers, C. B. Ingraham, T. E. Carmody and G. P. Lingenfelter.

Dr. D. L. Whittaker of Hayden, and his family, are travelling in the east. The Doctor has been taking post-graduate work at the Mayo Clinic and in Chicago.

Dr. C. S. Phalen of Salida was married in June to a young lady of Polo, Illinois.

Dr. J. C. Thompson, superintendent of the Steamboat Sanitarium since its establishment a year ago, has moved to northern New Hampshire, where he will act as surgeon to a lumber company. His place as medical director of the sanitarium will be taken by Dr. Frank J. Blackmer.

Dr. A. J. Kaufman has bought the practice of Dr. J. W. Benners at Silver Plume and Georgetown.

Dr. F. M. Cooper, formerly of Colorado Springs, has opened offices at Fowler, Colo.

Dr. C. O. Rice, for sixteen years at Saltillo, Mexico, has located at Antonito, Colo.

Dr. Walter Hilliard, a resident of Denver for about twenty years, died at his home on June 17th. He had been very ill for many weeks. He was born seventy years ago at Oxford, N. C., graduated from Tulane University and from the medical department of Columbia University, and later took post-graduate work in Europe in diseases of the eye, ear, nose and throat. He leaves a wife, two daughters and a son, who is a physician. His remains were cremated and sent to New York City.

Dr. G. N. Macomber of 1415 Welton Street, Denver, where Dr. Hilliard had offices for so many years, would like to find a congenial physician to take the offices left vacant by Dr. Hilliard's death. He states that Dr. Hilliard's long-established practice in the specialties makes the location particularly suitable for an eye, ear, nose and throat man. The office is well equipped.

Dr. E. F. Lake died on June 10th after a long illness with cancer of the tongue. He graduated from Syracuse, N. Y., and located at Central City thirty-three years ago, removing to Denver thirteen years later.

Dr. A. I. Hayes of Victor, who was injured in an automobile accident on March 3rd, has now been able to resume charge of his practice, which had been in the care of Dr. A. H. Darrow of Denver.

Dr. G. E. Richmond of Center was taken to Alamosa on June 21st, by Dr. L. L. Herriman of Alamosa, on account of an attack of appendicitis. Dr. Richmond is said to be doing well.

Colorado Springs Notes.

Dr. and Mrs. L. H. McKinnie have returned from a month spent in California. While there the doctor attended the meeting of the A. M. A. as a delegate from Colorado.

Dr. and Mrs. W. A. Campbell have returned from a visit to the fairs and the meeting of the A. M. A.

Dr. Mary R. Noble has returned from a trip to California.

Dr. and Mrs. P. A. Loomis are the parents of a son born recently.

Dr. and Mrs. James R. Stewart have returned from their honeymoon, and are at home to their friends in Colorado Springs.

Dr. W. L. Rodman's Address in Denver. On Monday evening, June 14th, Dr. W. L. Rodman of Philadelphia, President of the American Medical Association, delivered a lecture under the auspices of the Denver City and County Medical Society, on "The Early Manifestations and Treatment of Cancer." He commenced his address with the statement that cancer was always local in the beginning, and never occurred in healthy tissue, that the precancerous condition was chronic irritation in some form, and that the early recognition of this local condition and its prompt treatment by surgical means was the only way in which the great mortality could be prevented and reduced. He emphasized the fact that when metastasis had occurred the prognosis was unfavorable, even though this had not progressed beyond the glands in the immediate vicinity of the original focus of the disease. He dwelt forcibly upon the fact that the diagnosis was ordinarily made so late that only a small percentage of cases were operable when first seen by the surgeon, and declared that this, while generally true, was especially so of cancer of the stomach. He spoke of the insidious beginning and early history of cancer, and the absence of pain until the disease was far advanced, and he urged the necessity of more scientific, and closer clinical study and investigation, and deprecated the fatal neglect of laymen and physicians in not recognizing the necessity of early radical treatment as the only successful method of dealing with the condition. He discredited the much exploited radium treatment and encouraged the use of the X-ray as a prophylactic after operation, and of the intense rays in inoperable cases.

He directed the attention of his large medical audience to the great tendency of moles and warts to cancerous degeneration, and the necessity of their removal before this degenerative change became manifest. He spent a good deal of time in a most interesting delineation of cancer of the breast and stomach. He is a warm advocate of immediate frozen section at operation in cases of doubtful diagnosis of breast tumors, for while all tumors should be removed, the operation is necessarily more radical in malignant disease. About 20 per cent. of benign tumors of the breast undergo malignant degeneration in time. The different forms and pathological conditions, and operative technic, were illustrated by lantern slides. Eighty per cent. of stomach cancers, he said, were preceded by a definite history of ulcer. Their tendency to cancerous degeneration made the curative treatment of the ulcer urgent. He endorsed the growing surgical opinion that gastroenterostomy has little or no standing in gastric ulcers, though useful in the duodenal with pyloric constriction. He strongly urged excision of all long-standing ulcers as the only safeguard against perforation and the development of cancer. He was impressive in his effort to show the necessity of early recognition of the conditions predisposing to cancer, as well as of the earliest manifestations of it, in order that the patient may have the benefit of the best surgical treatment, the only promise of favorable results.

Dr. Rodman, though not feeling well, spoke for an hour in a graceful, effective manner to an appreciative audience of physicians and surgeons from city and state. W. W. G.

The American Surgical Association. The Mayo Clinic at Rochester, Minnesota, proved a most generous host in entertaining The American Surgical Association at its annual meeting on June 9th, 10th, and 11th. The daily sessions were held in the comfortable and roomy auditorium of the Clinic building while the clinical work at the hospital was called a half hour earlier in the morning in order that the members and the guests of the Society might have an opportunity of visiting the hospital for two hours daily prior to their regular session. Of course, as is usual at Rochester, these clinics amply repaid the visitor both in volume and quality of work performed.

Dr. George E. Armstrong of Montreal, Canada, presided at the meetings, and some forty papers by some of the most prominent surgeons of America were presented. A new and interesting feature introduced at this meeting was a series of clinics held by members of the Association in several of the cities through which the members would be obliged to pass while on their way from the Atlantic coast to Rochester. The first of these clinics was held by Dr. Crile at the Lakeside hospital in Cleveland on the morning of the 7th of June, with a demonstration of cases in the afternoon. On Tuesday morning, the 8th, the members attended a clinic held by Dr. Ochsner at Augustina hospital from 9 to 10:30 a. m., followed immediately by a clinic at Mercy hospital by Dr. Murphy, from 11 a. m. to 1 p. m. After a generous lunch at the Chicago Club the members repaired to the Presbyterian hospital, where Dr. Bevan held a clinic from 2:30 to 4 p. m.

At 6:30 p. m. the members took a special train out of Chicago, reaching Rochester at 6:30 the following morning. The Sisters at St. Mary's hospital entertained the members and their guests at a generous luncheon at noon of the first day, and a garden party was held on Thursday evening at Dr. Charles Mayo's palatial country home. On Friday afternoon many of the members took a special train for Minneapolis and St. Paul, where they were entertained by the medical profession of the twin cities for dinner, and breakfast the following morning, with a visit over the grounds of the University. At 2:30 in the afternoon the members of the Association and their friends were taken aboard the Mayo's steamer Orinoco and were again the guests of Drs. W. J. and C. H. Mayo for a period of twenty-four hours, after which they returned to Rochester and started for San Francisco. The meeting was very well attended and Denver was represented by both members of the association. I dare say that there was never a more profitable and congenial meeting that the session of 1915.

C. E. T.

Medical Societies

EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held at the Society's library and meeting room in the Elk's Club building on June 9th, 1915, at 8:15 p. m., with President Dr. J. F. McConnell in the chair, and thirty-five members and two visitors present.

The executive committee reported favorably upon the application of Dr. Carl S. Adams.

Dr. C. O. Giese presented the following clinical case: A male with pulmonary tuberculosis in which there had evidently been a rupture of the tuberculous process externally. Smears of the discharge from the sinus, which was between the third and fourth left costal cartilages and two inches from the sternum, showed it to have all of the characteristics of the patient's sputum, tubercle bacilli being abundant. Skiagraphs of the case showed that the sinus apparently led into a very large cavity occupying the left upper portion of the chest, or led directly into the cavity of a partial spontaneous pneumothorax. The patient gave a history of pulmonary tuberculosis for six years, the external rupture occurring three or four months ago.

Drs. Magruder and Hanford spoke upon the work of the Chamber of Commerce during the past year and their plans for the coming year, and urged that the members of the Society be very liberal in their donation to the budget for next year.

Mr. W. C. Hanna, Ph. G., read a paper upon the "Superiority of the Preparations of the National Formulary Over Similar Proprietary Ones."

"The Internist's Opinion of the Laboratory" was given by Dr. C. F. Gardiner, he having been absent from the last meeting on account of illness.

The Society voted to hold the next meeting October 13th, 1915.

There being no further business, the society adjourned to the dining room, where lunch was served.

GEORGE B. GILMORE,
Secretary.

SOLLY TUBERCULOSIS SOCIETY.

The regular meeting of the **Solly Tuberculosis Society** was held at the El Paso Club on March 30, 1915. The following officers were elected: Dr. Will Howard Swan, president; Dr. Philip A. Loomis, vice president, and Dr. Herman Trossbach, secretary and treasurer.

On May 11, 1915, a meeting of the Society was held, also at the El Paso Club. Dr. Lawrence Joseph Henderson, professor of biological chemistry of Harvard University, gave an interesting talk on "The Respiratory Function of the Blood", which was discussed by Dr. E. C. Schneider, professor of biology of Colorado College, and Drs. Gilbert and Bortree. Professor Henderson, in closing, suggested that the Society give its hearty cooperation and assistance to Professor Schneider in solving some of the problems along this line.

The Society declared Professors Henderson and Schneider honorary members.

H. TROSSBACH,
Secretary.

Book Reviews

A Manual of Diseases of Infants and Children. By John Ruhräh, M.D., Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore, Md. Fourth Edition. Thoroughly Revised. 12mo. volume of 552 pages, 175 illustrations. Philadelphia and London: W. B. Saunders Company. 1915. Cloth, $2.50 net.

Professor Ruhräh has given us, under the above title, a most comprehensive manual embracing nearly every phase of infant and child life. He begins with the care of the new-born babe and follows the usual order of our text-books. As would be expected in a book limited to 552 pages, most of the subjects are treated very briefly indeed.

In certain respects, this last revision only moderately reflects the accepted opinion of today. The section on infant feeding could scarcely be considered to embrace the latest views on that very important subject, as it practically ignores the work and views of such men as Howland, Abt, Czerny, Feller and Finkelstein.

The chapter on the medical inspection of school children is excellent. It takes up briefly hygiene, the eyes, the ears, the nose and throat, the teeth, the mentally defective children, nervous diseases, physical defects, infectious diseases and the measuring of the development of the intelligence of children by the Binet-Simon scale.

On the whole, the book is well written and abundantly illustrated. It will be found useful for students preparing for a quiz, for nurses and for physicians so busy as to be unable to give time for more than a hasty perusal of the subject under consideration. G. M. A.

The Cancer Problem; by William Seaman Bainbridge, A. M., Sc. D., M. D., Professor of Surgery New York Polyclinic Medical School and Hospital; Surgeon and Secretary of Committee of Scientific Research, New York Skin and Cancer Hospital; consulting surgeon Manhattan State Hospital, Ward's Island; Honorary President First International Congress for the Study of Tumors and Cancers, Heidelberg, 1906. 534 pp., 23 pl. $4. New York; Macmillan Co.

This is a book designed to supply information concerning cancer, to the lay and the professional mind. Like so many books on scientific or technical subjects attempting to fullfill two very diverse purposes, it falls short of them both. The book impresses one with the author's familiarity with the subject of cancer. There is some information in the text, but so hidden by much that is irrelevant that it is hard to find. The chapter on Diagnosis, Possible Errors in Diagnosis, and Prophylaxis, with case reports, is interesting. The author's stand on radium is commendable. The chapters on Technic contain many suggestions which are not new but worthy of repetition. The climax—"If cancer cells be cut out soon enough, permanent cure is effected"— may well be used as the slogan in the cancer campaign. The most valuable part of the book is the very extensive bibliography. C. F. H.

Practical Medicine Series, 1915. Vol. III., Eye, Ear, Nose, and Throat. Edited by Casey A. Wood, Albert H. Andrews and William L. Ballenger. $1.50 per volume or $10.00 for series of ten volumes. The Year Book Publishers, 327 S. La Salle St., Chicago.

This volume of 384 pages with 51 illustrations will be welcomed by the general practitioner as well as the specialist. The literature on eye, ear, nose and throat for the past year is effectively but briefly covered and presents these subjects admirably for the busy medical man.

The section devoted to diseases of the eye is edited by Casey Wood and covers 179 pages. The recent advances are presented in a concise, brief manner. The reviews of "Hygiene of the Eye", "Refraction and Accommodation", "Trachoma", "Crystalline Lens", and "Ocular Muscles" are given in nut-shell abstracts from the vast amount of literature on these subjects. Glaucoma is given considerable space and the various operations to relieve it are discussed.

Albert H. Andrews has edited the chapter on diseases of the ear and has abstracted articles on "Deafness", "Middle Ear Diseases", "Diseases of the Internal Ear", and "Radiotherapy". Tuberculosis of the middle ear is discussed in six interesting pages. Mastoid disease and its treatment have ample space.

In Ballenger's section on the nose and throat, consisting of 115 pages, the diseases of the accessory sinuses have been given much space. The discussions of ethmoid disease, its relation to the eye and orbit, the treatment of frontal sinus suppuration, operations on the maxillary and sphenoid sinuses are well worth reading. Literature as to the entameba buccalis as a causative organism of pyorrhea alveolaris and the treatment of this condition with emetine hydrochloride is also abstracted. The pages which cover the mouth, pharynx, tonsils and larynx are also of much interest. W. C. F.

The Practical Medicine Series—General Surgery. Edited by John B. Murphy, A.M., M.D., LL.D., F.R.C.S., Professor of Surgery in the Northwestern University. Cloth, price $2.00, 602 pages; 230 illustrations. Chicago, The Year Book Publishers, 1915.

This book, in a brief and interesting manner, gives a review of the very latest surgical literature.

The surgery of the vermiform appendix continues to occupy a considerable amount of space in the literature.

The arsenical preparations are receding in their estimated value, while the vaccines continue to increase in favor.

The etiology of cancer is still being investigated.

The technic of blood transfusion has been greatly simplified.

The work shows in a concise and interesting manner what has been done in surgery during the past year. C. P.

Outlines of Internal Medicine. For the Use of Nurses. By Clifford Bailey Farr, A.M., M. D., Instructor in Medicine, University of Pennsylvania; Assistant Visiting Physician, Philadelphia General Hospital; Pathologist to the Presbyterian Hospital. 12mo., 408 pages, illustrated with 71 engravings and 5 plates. Cloth, $2.00, net; Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This book is not written to take up the subject of general nursing but is devoted to the systematic study of medicine for the use of nurses.

It is divided into ten parts and deals with all the different divisions of medicine usually taken up in a book intended for the physician or medical student. It gives a short, concise, and interesting statement of these and includes prophylaxis and treatment of the different diseases and intoxications, placing particular emphasis upon treatment other than by drugs.

Under the division "Diseases of Metabolism", the author gives a short review of food values. He also takes up briefly in its appropriate place the operations of lumbar puncture, of venesection, of intubation, and of aspiration of the chest. Blood examinations, the taking of blood pressure, stomach lavage, and rectal feeding are described, so that the nurse may understand these procedures, even though she may not be required to do them.

Training schools should find in this book a very useful textbook, giving the nurse a good general idea of the subject and making an excellent and interesting reference resource for her while at work. M. R. S.

The Babinski Sign in Transient Functional Diseases (With Special Reference to Hysteria.)—Eve (British Medical Journal, September 26, 1914) says that ever since Babinski first published his valuable method of deducing from the presence of an extensor plantar reflex the existence of organic disease in the pyramidal tract, he has watched this sign closely in general hospital and private work.

This experience revealed only one group of exceptions to the rule that the presence of a Babinski in conscious adults indicates organic disease in the upper motor neurons. He has never found it present during or after hysterical paralysis or fits. The one group of exceptions is that, after fits, coma, or paralysis due to epilepsy, uraemia, or eclampsia, he has learned to expect to find a Babinski sign present for a few hours or even a day or two. Others have found it present also after coma from alcohol or anaesthetics, or in saturnine encephalopathy. Hawthorne has furthermore found it after diphtheria and other infections. Eve uses the fact of its never being found in hysteria as evidence that hysterical hemiplegia is peculiar in being due to loss of function in levels in the brain above the pyramidal tract. He criticizes Judson Bury, who in his recent book says that "hysteria is a psychical disorder which often leads to disturbance of the lower centers of the brain and spinal cord and of the sympathetic system. The exact nature of the cortical disturbance is unknown." Eve asserts that the lower centers of the brain and cord are entirely unaffected in hysteria, and are as innocent as the peripheral nerves.

When applied to hysterical paraplegia he says that one may object that a symmetrical bilateral paralysis could not occur in the affection of the higher center of the brain without assuming the extremely improbable occurrence of simultaneous symmetrical lesions of the cortex. But he says this rule does not apply to functional disease, in which experience shows that the brain is just as readily affected symmetrically as unilaterally.

A plausible explanation of the Babinski sign is that it is in some way an effect of lessened inhibitory control which is normally exerted by the upper motor neurons. Its transient appearance after fits, etc., is in the same way an expression of diminished inhibitory control, but due in this instance to temporary exhaustion or poisoning of the upper motor neuron. Since it is almost constant after fits of epilepsy, uraemia, etc., and always absent after hysteric attacks, it is very useful in determining what the condition is, when you do not see the patient until after the attack has subsided. O. M. G.

REMEMBER THE ANNUAL STATE MEETING, OCTOBER 5, 6, AND 7, 1915.

Colorado Medicine

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Editorial Comment

THE ANNUAL MEETING OF THE COLORADO STATE MEDICAL SOCIETY WILL BE HELD ON OCTOBER 5TH, 6TH AND 7TH. THE PLACE OF MEETING, DENVER, SHOULD ENSURE A LARGE ATTENDANCE. IF YOU ARE NOT PRESENT, YOU WILL BE MISSED, AND WILL MISS MUCH THAT IS WORTH WHILE IN YOUR PROFESSIONAL AND SOCIAL LIFE. BEGIN NOW TO PLAN FOR THE MEETING. THE LOCAL COMMITTEE OF ARRANGEMENTS WILL PROVIDE AMPLE ENTERTAINMENT FOR THE VISITING LADIES.

DR. W. T. COUNCILMAN AT THE ANNUAL MEETING.

The Scientific Program Committee takes great pleasure in announcing to the members of the Colorado State Medical Society the name of Dr. William T. Councilman as guest of honor at the meeting of the Society in next October.

Doctor Councilman has held for many years the chair of Professor of Pathology and Bacteriology at Harvard University Medical School. He is a member of the American Association of Pathology and Bacteriology and one of the trustees of the American Society for the Control of Cancer.

The opportunity and privilege of welcoming such a guest at our coming meeting and of hearing him address the Society adds greatly to our program.

THE VERSATILITY OF THE STREPTOCOCCUS.

Streptococci were first demonstrated by Koch and Ogston in 1882; but bacteriologists are still far from having completed their investigation of this malicious microorganism. The study of the etiology of infectious conditions consists in part of the discovery of new microbes, and in part of the tracing of hitherto unknown fields of activity of familiar acquaintances. In the germ world we are repeatedly encountering old foes under new faces; and this is perhaps even more true of the streptococcus than of any of its near or distant kindred.

Gastric and duodenal ulcer are still included to some extent among the medical mysteries. We know a good deal about their symptomatology, and somewhat of their treatment; but their etiology has been by no means clear. Rosenow and Sanford (The Journal of Infectious Diseases, vol. 17, p. 219) seek to place these lesions among the doings of the streptococcus. Hemorrhage of the stomach, with or without visible ulceration, has been observed rather frequently during the late stages of severe streptococcal infections in man and animals. It has been found that streptococci of a certain grade of virulence, irrespective of their original source, are prone to localize in the mucous membrane of the stomach and duodenum of animals following intravenous injection, producing ulcers which may resemble those in man. Rosenow and Sanford now record the results of cultures, and of the histological examination of the tissues, from a series of ulcers and of lymph glands draining the ulcers, excised at operation on human beings.

A more or less thorough search for bacteria in stained sections was made in twenty-seven ulcers of the stomach and twenty ulcers of the duodenum. In fifteen gastric and ten duodenal ulcers cultures were made; the rest had been preserved in 10 per cent formalin for from two to five years in the museum of the Mayo clinic.

In the depths of these human ulcers streptococci were found almost constantly, to the total or almost total exclusion of other bacteria. The number of streptococci found was greatest in the relatively acute ulcers and in chronic ulcers in which the clinical history and cellular infiltration indicated a recent lighting up of the infection; and fewest or even absent in the very chronic, markedly indurated ulcers with no clinical or microscopic evidence of recent, acute inflammation. The bacterial flora of ulcers excised at operation was found very much simpler than that of ulcers excised after death. The isolated strains from twenty-seven cases of chronic ulcer, when injected into dogs, rabbits and guineapigs, showed a relatively low grade of virulence, but a marked tendency to localize in the mucous membrane of the stomach and duodenum, producing circumscribed areas of infection associated with hemorrhage and ulceration in a high percentage of the animals inoculated intravenously.

Rosenow and Sanford therefore feel that they have good evidence for believing that the streptococci found in human ulcers are not merely accidental secondary invaders of the tissues, but are commonly the original cause, as well as the important factor in preventing the healing of the ulcer.

Another paper, by Rosenow and Moon (The Journal of Infectious Diseases, vol. 17, p. 69), briefly states the results of study of an epidemic of streptococcal sore throat which was traced to an infected milk supply, and which subsided when pasteurization of the milk was instituted. Virulent streptococci isolated from the milk showed selective preference for certain animal structures, such as joints, muscles and gall bladder. Involvement of muscles and joints occurred in patients who were infected by the milk. The authors point to these observations as strongly suggesting that infected milk, in addition to causing epidemics of sore throat in which the symptoms are acute and marked, may be the source of streptococci of such virulence as to cause rheumatism and allied conditions in human beings.

THE PURSUIT OF HEALTH.

For a number of years the average length of life in a number of civilized countries has shown a steady increase. This does not demonstrate that the people of those countries are more robust than their predecessors, but merely that the study of preventive medicine has enabled us to diminish the extent to which certain causes of disease and death are effective. On the whole we have not so much strengthened resistance as weakened the attack.

Some exceptions must of course be made to this statement. The patient who has been threatened with extinction by active tuberculosis, and who by education in the laws of health, within or without a sanatorium, has learned the value of fresh air, sunshine, rest, and good food, has actually become more efficient in the fight against germs. The baby whose mother is taught right principles of feeding is better able to withstand disease than some other babies whose mothers have received no such instruction. But the preponderance of gain in our modern lengthening of life has been in the direction of excluding infection rather than becoming, as individuals, better able to fight it.

In certain decades of life the mortality has increased rather than diminished. This is especially true in the United States, where the intensity of life has become perhaps greater than in any other land or at any other time in the world's history. This increase of mortality is in large part among men who, after long years of training and development, have reached the period when their usefulness to the community is at its maximum.

To overcome the tendency to those degenerative diseases to which this increase of mortality in middle life is due, much may be done by a more conscious pursuit of health We consciously seek financial wealth, and in the intervals of time many of us devote a good deal of energy to the pursuit of pleasure; but we are too apt to neglect construct-tive measures toward the preservation of that physical soundness without which financial wealth is relatively useless and pleasure but a sugar-coated pill.

It is doubtful whether much is gained by extreme indulgence in physical sports in early life, if the individual later settles down to years of mental work and almost complete bodily inactivity. With the rapid increase in number of those who are engaged in confining and sedentary occupations, the need for outdoor sports, not confined to the few or to childhood and youth, but indulged in judiciously by the many and through a great part of life, becomes more marked. Perhaps the time will come when every man and woman will work in more than one capacity, spending an allotted number of hours per day or of days per week in an occupation which draws more upon the body than the mind. But since that is at present out of the question, those who gain their livelihood by working with the brain rather than the hands should consciously seek an antidote. Some will work in the garden, which Bacon called "the purest of human pleasures . . . the greatest refreshment to the spirits of man". Walking is always available and almost always profitable. For those whose arteries are still sound and elastic, such games as tennis have a more bracing and stirring quality. Riding horseback, though excellent, is a luxury of the few. Running as a systematic form of exercise is too much neglected. Golf has the advantage that it can be played at almost any age. In summer and winter, Colorado mountains afford vigorous exercise which is accompanied by many incidental rewards. The bicycle has been excessively displaced by the automobile, which furnishes fresh air in abundance, but commonly very little exercise to those who depend upon it for their locomotion. Swimming should be taught to every school boy and school girl in pools provided by the school authorities; and ample facilities for its practice in later life should be afforded in every fair-sized city.

In our cities we need more playgrounds, not merely for those of school age, but for the "children of a larger growth". These outdoor facilities for sport should be supplemented by halls, placed within easy access of everybody, where gymnastic exercises and indoor games would be available to the grown-up members of the community. Of course the provision of such facilities would increase taxation; but wise public expenditure is one of the best fields for investment of the financial wealth of the citizens.

HIBERNATION AND THE PITUITARY BODY.

Civilized man turns night into day, and would gladly forget the necessity for sleep. Many of the lower animals, on the other hand, devote not merely a few hours at a time, but a whole season of the year, to slumber. To the scientific mind sleep has proven an even greater mystery than death itself, the "poppied sleep" of the poet. The hibernation of animals has given rise to a good deal of dispute. Some recent writers have revived the opinion expressed by Marshall Hall nearly a century ago, that natural sleep, hibernation, and the so-called diurnation of animals whose waking habits are nocturnal differ from one another merely in degree.

The current conception of hibernation as attributable to two extracorporeal factors, namely low external temperature and diminished food supply, does not successfully harmonize with such experimental investigations as have been made in this field. While lethargy is the dominant manifestation of hibernation, two other features are of importance—the preliminary storage of fat and the evidences of retarded tissue combustion during the period of somnolence. Other features of the condition are brachycardia, slowed respiration with diminished output of carbon dioxide, lowered blood pressure, relative peristaltic inactivity, and marked insensitivity to painful or emotional stimuli.

Cushing and Goetsch (The Journal of Experimental Medicine, vol. 22, p. 25) point out that a seasonal wave of physiologic inactivity on the part of certain glands of internal secretion may well account for the phenomenon of hibernation. After experimental removal of the hypophysial gland in dogs, the marked symptoms were lethargy, subnormal temperature, slow pulse and respiration, lowered blood pressure and insensitivity. It is interesting to note in this connection that the hearts of animals which had been in a lethargic state for some hours would continue to beat, after the fashion of the frog's heart, for an unusual length of time when removed from the body after death; and further that the nerve muscle preparation of the hibernating marmot is almost as slow in losing its excitability as that of the frog. The train of symptoms accompanying experimentally induced hypophysial deficiency is equally characteristic of clinical states of hypopituitarism.

Cushing's book on the pituitary body and its disorders contains an account of a case of stationary hypophysial insufficiency in which an extraordinary period of seasonal somnolency had recurred for several years. In a case now recorded a patient whose hypophysis had been almost completely destroyed by an infundibular cyst, and who had passed through several months of marked somnolence, showed a very remarkable, although temporary, recovery from this condition after the implantation into his cerebral subcortex of the pituitary gland of a still-born child.

In the winter of 1912-1913 Cushing and Goetsch studied the ductless glands of seven woodchucks during and after the hibernating period. The most notable histologic changes observed occurred in the pituitary body. Not only did the gland diminish in size, but the cells of the pars anterior, in some of the animals at least, completely lost their characteristic staining reactions to acid and basic dyes. At the end of the dormant period the gland swelled, and as the cells enlarged they again acquired their differential affinity for acid, basic and neutral stains, and at the same time karyokinetic figures appeared in some instances.

On the basis of their observations Cushing and Goetsch conclude that hibernation may be ascribed to a seasonal physiologic wave of pluriglandular inactivity, the essential rôle of which may well be attributed to the pituitary body.

ABSTRACTS OF PAPERS.

To be Read at Forty-fifth Annual Meeting of Colorado State Medical Society, in Denver, Colorado, October 5th, 6th and 7th, 1915.

NOTE.—At the time of going to press with the August number, a few of those intending to read papers at the annual meeting have still failed to supply the Program Committee with the necessary details. The program as here given is therefore to that extent incomplete. The following titles and abstracts are arranged in alphabetical order of the authors' names.

INFECTIONS OF THE HAND AND ARM.

Byron B. Blotz, M.D., Rocky Ford.

(a) Importance of the proper conduct of these cases, with special reference to the various Workman's Compensation Acts.

(b) Proper care of minor infections and injuries as a prevention of the more severe types of infection.

(c) Recognition of the severe types, lymphangitis, tenosynovitis and facial-space infection.

(d) Treatment.

THE X-RAY DIAGNOSIS OF PATHOLOGICAL LESIONS OF THE INTESTINAL TRACT, WHICH PRODUCE SYMPTOMS THAT SIMULATE ORGANIC DISEASE OF THE STOMACH, LANTERN SLIDE DEMONSTRATION.

Samuel B. Childs, M.D., Denver.

"Indigestion" or "Chronic Dyspepsia", which persists for months without yielding to ordinary medication or diet, has only within a comparatively short time been considered positive evidence of an organic lesion somewhere in the gastro-intestinal tract.

Many, if not all, of the symptoms of so-called "dyspepsia" are referred to the stomach, but careful X-ray examination of the intestinal tract often discloses a lesion such as cholecystitis, chronic appendicitis, Lane's kink, Jackson's membrane, adhesions, intestinal kinks, patent ileo-cecal valve, colonic stasis, etc., which produces a reflex spasm in some part of the muscular wall of the stomach, attracting the patient's attention to this organ.

Surgical removal of one or more of the causes as enumerated above, and the subsequent restoration to health of the patient, demonstrate the fact that the lesion in the intestinal tract was the sole cause of the stomach symptoms.

Hence the importance of thorough examination of the entire gastro-intestinal tract before a complete diagnosis in these cases is warranted.

By detection, and employment of proper surgical measures for the relief, of various pathological conditions of the intestinal tract we can not only give the patient the best chance for restoration to health, but also remove strong provocative cause for the production of ulcer or cancer in the stomach or intestines.

INGUINAL HERNIA AND THE COMPENSATION LAW.

R. W. Corwin, M.D., Pueblo.

Anatomy of hernia. Causes of hernia. Traumatic hernia. When is hernia an accident? How to differentiate between traumatic and ordinary herniae. Relation of the compensation law to hernia.

DEEP ROENTGEN THERAPY OF INOPERABLE MALIGNANT AND BENIGN CONDITIONS BY IMPROVED TECHNIC.

L. G. Crosby, M.D., Denver.

In the present day, by means of hard and filtered rays, and accurate measurement of dosage, it is possible to treat effectively deep lesions without detriment to the overlying tissues.

The results that are being obtained both in this country and abroad, in the treatment of these inoperable conditions, not only justify employment of this method in an attempt at cure, but warrant the statement that it should be employed post-operatively in many if not all deep-seated malignant lesions.

THE TREATMENT OF UNUNITED FRACTURES BY THE USE OF BONE GRAFT; WITH REPORTS OF CASES.

E. F. Dean, Denver.

The paper will consist of the detail of the technique of treatment of these fractures by the use of the medullary bone graft; and reports of the results in the cases.

THE MANAGEMENT OF ENDOCARDITIS.

C. E. Edson, M.D., Denver.

SCOPOLAMIN AMNESIA OR TWILIGHT SLEEP.

Charles A. Ferris, M.D., Denver.

Object of preparing this paper two-fold, viz.:

(1) A defense of the propaganda to obtain some means of allaying the pangs of child-birth.

(2) A criticism of the American habit of too quickly accepting, and also too quickly condemning new departures in medicine and surgery without careful personal investigations and fair trials sufficient to warrant an opinion.

Brief review of the method of producing the "twilight sleep" or "Dämmerschlaf" in the Freiburg Clinic, with results. Dangers and advantages. Shall the general practitioner take up the use of this method at this time?

ETHICAL MEDICINE.

M. R. Fox, M.D., Sterling.

(a) The corner stone of ethics and medicine. A brief description of the origin, character and conduct of ethics and medicine.

(b) The medical practitioner and the commonwealth. The physician as an educator of the masses. His attitude toward the public. What the commonwealth owes the physician.

(c) The medical practitioner and his colleagues. Safeguarding of the medical profession by its members. Consultation is to benefit the patient. Meeting physicians with impartiality, and promoting medical welfare.

(d) The medical practitioner and law. Obedience to law. Accurate and prompt attention to matters required of the profession.

(e) The medical practitioner in diagnosis and treatment. Diagnosis based on accurate findings, and the use of all practical methods. Treatment applied scientifically.

(f) A practical resumé and application.

FURTHER EXPERIENCE IN THE USE OF THE WIRE TOURNIQUET IN THYROIDECTOMY. (Lantern Slides.)

Leonard Freeman, M.D., Denver.

PNEUMOCOCCUS SORE THROAT IN CHILDREN.

F. P. Gengenbach, M.D., Denver.

The rôle of the pneumococcus in throat conditions not recognized until recent years. References in literature. Apparently two types of cases; one with intense congestion of the structures of the throat without membrane, but with marked involvement of the cervical glands; the other with a white porcelain-like membrane with slight or no enlargement of the cervical glands. Reports of cases. Bacteriology.

POST-OPERATIVE SURGICAL TREATMENT.

W. W. Grant, M.D., Denver.

The duty of the surgeon before, during and after operation. His responsibility does not cease with the completion of the operation. Consideration of prophylaxis and treatment, and of some common sequels to operation.

APPENDICITIS IN CHILDREN AS STILL OCCASIONALLY TREATED.

Edgar Hadley, M.D., Telluride.

The paper consists in greater part of the statement of a father in regard to the sickness and death of his little eight-year-old boy from appendicitis. The boy was taken sick in school with pain in his abdomen. A physician who examines the boy says that probably he has appendicitis; that many doctors would immediately operate; but that he thinks too much operating is done for appendicitis, and will treat the child without operation. After two or three days the child's pain is suddenly much less. A few hours later more severe and more generalized abdominal pain begins. At the end of eight or nine days the child is in extremis, and the doctor tells the father that the appendix has burst. With the father's consent he operates, and, a few hours afterwards the boy dies.

Following this a resumé is given of 200 cases of appendicitis in children, reported in the British Medical Journal for February, 1914. The facts brought out in this report are made the basis for urging extreme care as to diagnosis in every case of sickness in children, where abdominal pain is one of the symptoms; and secondly for urging courage and firmness in advising immediate operation. No physician today has a right to hold a personal opinion in regard to the treatment of appendicitis which is at variance with the consensus of opinion and practice of the profession as now established.

COLLOID CHEMISTRY IN ITS RELATION TO MEDICINE.

Philip Hillkowitz, M.D., Denver.

Historical sketch; its place in the natural sciences. Definition of colloids. Graham's classification. Modern interpretation, hydrosols, hydrogels, reversible and irreversible colloids. Differentiation from solutions and suspensions. Size of particles in colloidal suspensions as compared with molecules. The ultramicroscope in the evolution of colloid chemistry. Phenomenon of adsorption; Brownian movement. Protective colloids. Colloidal metals. Colloidal silver in diagnosis and therapeutics. Colloidal gold. Lange's test.

The structure of protoplasm: albumins and complex carbohydrates as colloids. The nature of ferments.

Colloid chemistry and serology. Antigen-antibody reaction a colloid phenomenon. Traube's explanation of immunologic processes on the basis of colloid chemistry, as opposed to Ehrlich's chemical side-chain theory.

POST PARTUM HEMORRHAGE; ITS MANAGEMENT. ILLUSTRATIVE CASES.

John Lindahl, M.D., Denver.

Postpartum hemorrhage is a time-worn subject, yet certain aspects of it do not seem to have received the emphasis they deserve. That is particularly so regarding concealed postpartum hemorrhage, estimation of blood lost and size of uterus during third stage of labor, also size of uterus during puerperium.

Etiology: Relaxed uterus due to abnormally weak musculature. This may be a biologic peculiarity in certain family strains; or be due to deficient development in early life; or occur in cases where the individual has lived a sedentary life with little exercise, and where the brain has been educated at the expense of the muscular and nervous system. Impoverished condition of the blood in its essential element favoring coagulation. Over-distension of the uterus from various causes. Remedial, climatic, fright, pain and shock are causative factors of uterine relaxation and hemorrhage.

Diagnosis: Is simple, except in cases of concealed postpartum hemorrhage, which demands accurate judgment regarding consistency, size, etc., of the uterus; frequency and quality of pulse; color of lips and countenance; size of pupils; condition of skin and amount of blood lost. The same diagnostic qualification is needed in open postpartum hemorrhage.

Prophylaxis: Examination of urine at beginning of fifth month, and of blood at commencement of sixth, if the general appearance of the patient seems to demand it, so as to correct condition of kidneys and blood prior to delivery.

Treatment: Patient should be placed on bed or table, so that attendant can see how much blood is lost from time to time. Securing contraction of uterus by various recognized methods, stopping flow of blood to uterus by pressure and position. Checking hemorrhage by introduction of hand or packing. Stimulants and replenishing lost blood by suitable fluids. Transfusion of blood in desperate cases.

THE USE AND ABUSE OF DRUGS.

Wilbur T. Little, M.D., Canon City.

As a result of modern methods of pharmacologic investigation our knowledge of drugs is undergoing rapid change. The determination of the physiologic action through animal experimentation is the only exact method of proving drugs. Thus tested many popular drugs are proved inert, and are therefore of doubtful therapeutic value. The pharmacologic investigator should be scientifically skeptic and free from commercial attachments. Mere clinical impressions should not satisfy us when judging the effects of drugs.

THE SILENT FEATURES OF TUBERCULOSIS OF THE KIDNEY.

Oliver Lyons, M.D., Denver.

Classification of various types; cases with acute symptoms; chronic cases with remission of symptoms; absence of subjective symptoms with complete destruction of kidney tissue. Silent symptoms of the disease may lead one away from the affected region or to look for the cause in other directions.

THE MANAGEMENT OF LABOR WITHOUT VAGINAL EXAMINATION.

Arthur McGugan, M.D., Denver.

Statistics of childbed mortality; preponderance of infection as a cause over hemorrhage, trauma, and other causes. The statistics of morbidity, where obtainable, even more impressive than those of mortality. The cervix, vagina, and surfaces of the external parts the sole source of this infection. Statistics of characteristics of various infecting organisms; impossibility of their complete destruction; their comparative harmlessness, if not carried upward to the uterus. Necessity for conducting labor without subjecting the parturient to this danger. Absence of technique of external examination and interpretation of external signs, due to insufficient instruction and practice in medical schools and general hospitals.

Methods employed in this country and in England. Outline of a plan for instruction in abdominal palpation, percussion, and auscultation for diagnosing position, presentation and condition of the fetus; essayist's method of rectal palpation of the presenting part, and estimation of the progress of labor. Interpretation of the patient's subjective symptoms and their relation to the rate and progress of labor.

In abnormal conditions, vaginal examinations add little, if any, to what was already known; unengaged presenting part diagnosed through abdomen; primary and secondary inertia diagnosed by uterine contractions and general condition; concealed hemorrhage diagnosed through maternal condition; rigid os detected per rectum and through absence of other causes of lack of progress. Suggestions for improvement in aseptic technique; in the use of forceps, both high and low.

REMARKS ON PERIPHERAL FACIAL PARALYSIS WITH SPECIAL REFERENCE TO DIAGNOSIS AND TREATMENT OF THE REFRIGERATION TYPE.

George A. Moleen, M.D., Denver.

Relative frequency of facial paralysis in neurologic records. The onset and course of the type due to exposure. Causative factors and various opinions considered. Brief discussion of pathology. Diagnosis with reference to differentiation of facial paralyses due to lesions in different parts of the facial tracts. Treatment is considered briefly, referring to the acute or early cases, and the advanced or long-standing or late cases with the indications for surgical intervention.

THE CLINICAL AND BACTERIOLOGICAL REPORT OF THREE CASES OF INFECTION WITH THE BACILLUS AEROGENES CAPSULATUS (WELCH) WITH OPERATION AND RECOVERY.

I. B. Perkins, M.D., Denver, and William C. Mitchell, M.D., Denver.

THE CLINICAL FORMS OF PULMONARY TUBERCULOSIS.

H. Schwatt, M.D., Edgewater, Colo.

For statistical and prognostic purposes it is necessary to have a classification of pulmonary tuberculosis. The classifications in vogue at the present, particularly the two most employed, Turban's and that of the National Association or its modification by the American Sanatorium Association, do not present a clear clinical picture of the case in question and particularly is this true in the so-called third stage. A classification should be based primarily on the character of the pathologic process and not so much on the extent of the disease, and should indicate the clinical and prognostic features of the case. The writer desires to submit a classification which will cover these requirements.

THE INFLUENCE OF SYPHILIS UPON SURGERY.

William Senger, M.D., Pueblo.

Studies made possible by Wassermann and allied reactions.

Influence of syphilis upon operations of necessity; with illustrative cases.

Influence of syphilis upon operations of choice; with illustrative cases.

Influence of syphilis in the production of "stitch abscesses."

Syphilitic lesions operated on through error; through necessity.

THE USE OF HEAT IN THE CONTROL OF INOPERABLE CANCER.

C. E. Tennant, M.D., Denver.

A certain stage of cancer is called inoperable because knife excision is without avail. The mortality in cancer, particularly of the uterus, is desperately high. Many substances have been tried, but the mortality seems as great as ever.

If cancer is primarily local and metastasis occurs either by lymphatics or blood stream, the treatment which will best control metastasis and yet destroy the local lesion should be most effective in curing it. Clinical and laboratory experiments have demonstrated that the malignant cell is more susceptible to destruction by heat than the normal cell. If the temperature is raised to 116° to 130° F., and there maintained for half an hour, the heat being evenly diffused throughout the malignant mass, the malignant cells are likely to be destroyed, without producing an atrium for metastasis by way of the blood or lymphatic channels.

The author has used two forms of heat: one the Percy cautery irons, which are very practical for localized areas; the other a method known as the diathermic, in which the heat is developed by the d'Arsonval current. Comparative experiments show that diathermy has advantages over the Percy cautery in certain types of neoplasm. The author also advocates the use of heat as preliminary treatment in border line neoplasms, followed by radical excision.

SOME SURGICAL OBSERVATIONS OF CHRONIC FRONTAL SINUSITIS AND ITS COMPLICATIONS.

Don A. Vanderhoof, M.D., Colorado Springs.

Frontal sinuses have been of interest for the past two hundred years, while the real relation to nasal discharges was shown between the years 1875 and 1885.

Intranasal and external operations vary according to originator's technique and desire for radical procedure.

Very free drainage is indispensable, while the advisability of examination of all nasal cavities previous to operating upon frontal sinuses is universally recognized.

Practicability of transillumination and X-ray work in relation to diseased conditions of the frontal sinuses.

Reports of cases showing complicated frontal sinusitis; technique used during operative work; treatment and final results.

Results derived from use of autogenous vaccines.

Natural trend toward conservatism when operative work is necessary upon frontal sinuses; advising one of the intranasal operations before resorting to radical work.

METHODS OF ESTIMATING THE FUNCTIONAL EFFICIENCY OF THE LIVER.

Charles B. Van Zant, M.D., Denver.

The importance of the liver, as indicated by its wide range of activities. A brief summary of these functions, as known at this time.

The loose clinical expressions applied to liver functioning in the past. The need of more exact and scientific criteria of the efficiency of this organ.

Present day methods and tests for determining this. These are all based on estimates of an increase or diminution of one or more of the several known activities of the liver, outlined above.

Methods based on: (1) the bile-forming function of the liver; (2) the urea-forming function; (3) the sugar-forming function; (4) the fibrinogen-forming function; (5) the anti-thrombin-forming function; (6) the protective function; (7) the iron-storing function; (8) other blood and urinary changes.

SOME POINTS FOR THE GENERAL PRACTITIONER IN EYE DISEASES.

F. E. Wallace, M.D., Colorado Springs.

Profession on trial. Too much superficial study. Deeper study of newer things needed. Physicians condemned by their failures.

Refraction should be undertaken by oculist only. Opticians or incompetent oculists prostitute medical science. Many hyperopic eyes given myopic lenses. General physician's time should be given to diagnosis in general medicine; not to refraction or specialist's work.

Blepharitis, stye, chalazion, entropion, ectropion, ptyerygium, dacryocystitis.

A red eye—what is it? Conjunctivitis, glaucoma, iritis, or keratitis? Conditions of unequal gravity.

Inflammation, superficial, or deep? Recovery prompt or patient blind? None but competent can answer. Violet patch sign of greatest importance. Glaucoma, pupil larger, eyeball is of higher tension. Iritis, pupil smaller and eye more tender.

Keratitis. Ulcer. Ophthalmia neonatorum, do not wait for microscope. Trachoma. Pannus.

A plea for the cross-eyed child. Atropine.

IMMUNITY IN TUBERCULOSIS.

Gerald Bertram Webb, M.D., Colorado Springs, and George Burton Gilbert, M.D., Colorado Springs.

Is a vaccine necessary? Can a vaccine be found? Nature's crude methods of vaccination. Inability to control smallpox by hygiene alone. Decreasing death rate. Increasing number of carriers. Dangers of infection. Importance of rest as a chief factor in treatment.

HEART DISEASE AND PULMONARY TUBERCULOSIS AS CONTRA-INDICATIONS TO SURGERY.

H. G. Wetherill, M.D., Denver.

The complaints of patients that they cannot take an anesthetic or have an operation, because they have "weak hearts," are usually found to be erroneous. Surgical operations need rarely to be abandoned, even in the presence of uncompensated heart complications or active pulmonary tuberculosis, if proper precautions are taken in preparing for the operation. The writer's experience with such patients under such conditions has been most favorable, particularly in Colorado. Patients with mitral lesions stand narcosis and operation well, whereas those with aortic and myocardial lesions are much poorer risks. The item of greatest importance in operating upon patients with heart disease or pulmonary tuberculosis is the careful selection of the anesthetic and of the anesthetist. The time of operation should be short; the work rapid; the patient guarded against exposure to cold. The hemostasis must be absolute.

OSTEOARTHRITIS.

H. W. Wilcox, M.D., Denver.

Scope of the term. Confusion in classification. Theories of etiology. Recent experimental work relating to joint infection. Treatment. Prognosis.

LANGE'S COLLOIDAL GOLD REACTION WITH CEREBRO-SPINAL FLUID.

William Whitridge Williams, M.D., Denver.

Outline of paper: (1) Historical. (2) Basis of the reaction. (3) Preparation of the reagent. (4) Technique of the test. (5) The reaction. (6) Results with non-syphilitic fluids. (7) Results with syphilitic fluids. (8) Discussion. (9) Conclusions.

Zsigmondy in 1901 discovered a method of differentiating various proteins by their power to prevent or inhibit the natural precipitating action of an electrolyte, as sodium chlorid, on a colloidal gold solution.

In 1912, Lange attempted to study the proteins in normal and pathological spinal fluids by means of the Zsigmondy reaction. He soon found, however, that these proteins, especially when present in abnormal amount or quality, instead of possessing any protective powers, were able of themselves to cause precipitation of the gold from a colloidal solution. He observed that this reaction always occurred within definite dilutions and appeared to be specific for different affections of the central nervous system. For instance, he could differentiate between syphilitic and non-syphilitic conditions. His work has been verified by numerous investigators, and it is the aim of this article to point out the experiences gained in an examination of several hundred spinal fluids by his method.

DIFFICULTY IN THE EARLY DIAGNOSIS OF TABES DORSALIS.

Philip Work, M.D., Pueblo.

Report of one hundred and fifty consecutive cases of tabes dorsalis with special reference to the early symptoms and the possible errors in their interpretation.

THE EFFECTS OF HIGH ALTITUDES ON CARDIAC AFFECTIONS.

A. Zederbaum, M.D., Denver.

The prejudice against the effects of altitude on diseases of the heart is not based on reliable facts nor supported by scientific data. In Switzerland and Germany, Eichhorst, Determan, Schrumpf, Staubli, and others, deny the injurious influence of altitude in the majority of forms of cardiac affections, and strongly recommend it in a vast group of heart troubles. In our country, Babcock, Sewall, Hall, and other authorities, corroborate the same idea.

The statistics of Schrumpf, at St. Moritz, Switzerland, demonstrate that locally-acquired diseases of the heart and blood-vessels are rare in these mountainous regions, notwithstanding the frequency of arthritic rheumatism. The supposition that blood pressure increases in high altitudes simultaneously with the decrease of atmospheric pressure is theoretically erroneous. What is called blood-pressure represents only the difference between the absolute pressure inside of the arteries and outer atmospheric pressure. The dropping of the latter produces a corresponding drop in absolute internal pressure, and thus the blood-pressure remains the same. When the blood-pressure has undergone a pathological change high altitude climate lowers the excessive systolic and diastolic pressure, with improvement in the patient's condition.

Indications and contraindications of high altitudes in different cardiac disturbances. Patients with compensated cardiac lesions, especially when acquired in high regions, do not act and feel in high altitudes differently from those with healthy hearts. The same can be said of valvular lesions with unstable equilibrium, and lighter forms of myocarditis. Cases cited in support of above statements.

Original Articles

DISEASES OF THE FEMALE URINARY TRACT PRODUCED BY DISEASES OF THE GENITAL TRACT.*

A. C. STOKES, M.D., OMAHA, NEB.

In the January number of "Surgery, Gynecology and Obstetrics" appeared an article by Drs. J. G. Clark and Floyd F. Keene, of Philadelphia, which directed the writer's thought towards a field in medicine that seemed but little explored and in which he had some special experience along lines which were extremely interesting and exceedingly important.

Drs. Clark and Keene discuss conditions in the female urinary system either mistaken for genital disease or produced by such disease.

We refer to diseases of the kidneys, bladder, ureters and urethra, which are either mistaken for diseases in the genital organs, for which operations are accordingly done on the genital organs, or for diseases of the urinary organs produced by tumors, inflammations, displacements, or abnormalities in the genital organs.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11. 1914.

The writer desires, first, to direct your attention to the kidney and ureter.

Hydronephrosis must be regarded as of mechanical origin in the great majority of cases, and, except in a few cases of congenital origin, may be traced to malpositions, strictures, stones, or inflammations obstructing the ureter or the pelvis of the kidney.

With the advent of the cystoscope and the use of bismuth and of wire ureteral catheters, we have shown that malpositions of the ureter are not uncommon; also that a certain number of these conditions originate from pelvic inflammations, displacements and growths. Hydronephrosis is one of the most commonly overlooked conditions with which we deal. Its symptoms are often either regarded as of no particular moment and so dismissed by the physician, or are placed at the door of the appendix, gall-bladder, stomach, or colon.

The writer wishes in this paper to bring to your attention cases which occurred in his practice illustrative of these conditions, in which diagnosis was not made at first, and in which only after careful study by the instruments of accuracy used in genito-urinary diagnosis were we able to solve the problem.

Case 1.—Mrs. H., aged 24, married, one child, weight 185 lbs., height 5 feet 6 inches. Patient entered Wise Memorial Hospital, Omaha, on January 8, 1913.

Her family and personal history was negative, except that she had suffered from a left-sided pain for several years. Had a leucorrheal discharge. The menstrual functions were regular, but were accompanied by extreme pain at times.

Physical examination revealed a retroverted uterus and possibly some ovarian or tubal infection or congestion, but there was no very definite infection.

A diagnosis of tubal and uterine displacement was made by her physician, in which we concurred. We operated for it and discovered exceedingly little of a pathologic nature, but corrected the position of the uterus. Her pain continued, and in April, 1914, she presented herself again with the same symptom—excruciating pain in the left side.

On the 4th of April the writer cystoscoped her bladder, and, on attempting to pass a catheter in the left ureter found an obstruction about one inch up through which the catheter would not pass. Occasionally small spurts of urine came from the ureter. The right ureter was perfectly patent.

We have not operated on this case again as yet, but made a diagnosis of hydronephrosis caused by some form of ureteral obstruction.

Cases similar to this can no doubt be duplicated in the practice of many surgeons. Yet the symptoms were not translated as referring to the urinary system, and, unless one were to make routine cystoscopic examination of all cases, one might easily be led into an oversight, and mutilating and unnecessary operations be done.

Case 2.—Mrs. O. K. Family and personal history negative. About four years ago she began to have pain in her right side and extending up into the back. The pain was paroxysmal. She suffered at times with frequent urination. She visited the writer first in December, 1913, at which time he made a diagnosis of hydronephrosis and advised operation. She had seen several physicians in Omaha, and there was such a difference of opinion that she finally went to Rochester, Minn., at which place they made the same diagnosis and her hydronephrotic kidney was removed.

In her rounds among the physicians, operations upon her genital organs had been advised. She had been told that she had appendicitis. One prominent surgeon was very anxious to remove her gall-bladder; others informed her that she was neurotic, and others that she was imaginative, until the woman was baffled by the divergence of opinion.

She afterwards returned to the writer for treatment of an old remaining cystitis. Two or three treatments entirely relieved the condition, and now she is strong and healthy.

Her pain has disappeared and her neuroses and neurasthenias have all yielded to the definite diagnosis made possible by accurate instrumentation and careful study.

In the writer's judgment, operations on the genital organs are common in cases where more careful study would have changed the diagnosis and shown the trouble to be not in the genital organs at all, but entirely outside of them, or at most secondary to inflamation in them. Many of our bad results following pelvic operations can be traced to diseases of the ureter and kidney. When we remember that the course of the ureter in the pelvis runs external to the internal iliac artery across the rim of the pelvis, under the broad ligament, under the uterine artery, and within less than a quarter of an inch of the body of the uterus, it is to be expected that a metritis and salpingitis, or any inflammation extending into the broad ligament or in the cellular tissues of the pelvis, may easily distort and kink the ureter.

As an illustration of such a condition the following case is submitted:

Case 3.—Mrs. T. First came under the writer's care for acute septic abortion. The uterus was emptied, and after a rather continued run of temperature the patient made a symptomatic recovery.

About two years after that the writer was called to see her again. She had been suffering during the interval with pain in her lower abdomen, extending to the right side. Bimanual examination discovered the presence of large inflammatory masses in the pelvis. The examination of the kidney on the right side showed a rather large tumor, which was sore and gave continuous distress. An attempt to catheterize the ureter on that side failed. At operation the writer discovered on the side side a large inflammatory mass, which extended into the tissues lining the pelvis, and the contractions and adhesions of which had drawn the ureter to one side and caused it to become dilated, so that above this mass the ureter could be easily felt through the peritoneum and was as large as a whip-stock. At the second operation the hydronephrotic kidney was removed.

Growths in the walls of the uterus extending into the broad ligaments, such as intramural fibroids, may often produce pressure on the ureter as it enters the bladder below the broad ligament, thus causing ureteral and kidney symptoms. These symptoms are frequently relieved by removal of the growth, but at times the ureter becomes so firmly fixed in its new course by adhesions and new formations of tissue that it does not come back into its normal bed. As an illustration of such a fact the writer submits the following case:

Case 4.—Mrs. E., aged 45, married twice. Personal and family history negative. She had had severe trouble with the menstrual periods for the last four or five years, with frequent urination.

Upon examination the writer discovered the presence of a large fibroid in the pelvis.

The patient entered the Swedish Hospital in 1908. The fibroid was removed and she made an uninterrupted recovery from the operation. She continued to suffer from pain in her right side. The pain was paroxysmal in nature and often extremely severe. This pain became more and more frequent. The writer was unable to locate the trouble, and she finally went to another physician, who removed her right kidney for beginning hydronephrosis. After this she was perfectly well.

In certain cases of pregnancy the enlarging uterus carries with it the ureter, so that during the period of pregnancy symptoms of hydronephrosis and obstruction of the ureters may arise.

The writer has no personal case of his own as an illustration of this point, but our obstetricians frequently report such cases, and the following case is taken from the literature:

Mrs. T., aged 23, married. Well until pregnancy. At the sixth month she suffered from a severe pain in her right side; relieved upon parturition. Repeated on second pregnancy. So in third, after which the pain became chronic and recurrent. Her appendix had been removed; the uterus was suspended and the tubes and ovaries trimmed up. But finally the removal of a right-sided hydronephrosis relieved the pain.

Pyelitis may be mistaken for salpingitis.

The diagnosis of pyelitis may be easy or difficult; usually it is easy, if we have an accompanying pyelonephrosis, but even then it is often mistaken for gall-stone, appendicitis or diseases of the genital organs.

A typical case presents this picture. The patient has complained of urinary disturbances for some days or weeks, when suddenly she is seized with pain in one or the other hypochondrium, more often the right, the pain being located deeply toward the back. This attack of pain is accompanied or preceded by a chill and high fever and, very often, by vomiting. The urine, examined at this time, is rather scanty, but otherwise may be nearly normal, since it is from the normal kidney, the affected ureter being occluded. On examination we find acute tenderness and often a tumor mass in the affected side, the tenderness being usually high under the ribs and rather deeply seated. After some hours or days the obstruction is usually overcome, and there is a rather profuse flow of pus-laden urine and an entire cessation of all subjective symptoms, the patient considering herself well. This occurrence may be repeated at irregular intervals until the patient is exhausted. Many women have had operations on their genital organs when the pathologic condition was a pyelitis.

Mrs. E., aged 25, married, two children. Patient entered the Swedish Hospital in December, 1910. Family and personal history negative. Menstrual history regular, preceded by pain; flow four days. She complained for five years of pains in left side, extending over the entire left abdomen, which pains were paroxysmal. Has been operated twice without benefit. Urine examination showed pus. This had never been discovered before, although several examinations of urine had been made by competent men. Tube and appendix had been removed. A diagnosis of right-sided pyonephritis was made.

It is a well-known fact that extensive cancer of the uterus spreads into the broad ligaments and around the ureter, and anyone ever having attempted the Wertheim operation for removal of the glands of the pelvis for cancer has no doubt discovered ureteral enlargements above the point of the cancer. I have had several cases of this kind, one of which I will cite as illustration:

Mrs. P. Family and personal history negative. Operated upon in the Wise Hospital in 1906 for extensive cancer of the uterus, involving the glands along the iliac vessels. Glands removed and the ureter dissected out on each side for about six inches. Operative recovery. Later returned for treatment on account of pain in her right side, which we thought at first to be from extension of the cancer, but later discovered to be due to hydronephrosis. We removed the kidney in 1910 for a very large hydronephrosis, the origin of which, so far as we were able to determine, was a stricture of the ureter in the pelvis. Such cases must be fairly common.

In such complications following pelvis operations the symptoms are not relieved, the patient returns time and again with all sorts of complaints, and the physician blames himself and his work, whereas that work may be perfect for what it was intended to accomplish, and the persistent symptoms may be produced by conditions secondary to the pathological condition which was the point of attack, these secondary complications themselves requiring special treatment. I believe that ureteral obstructions follow pelvic operations in a good many cases.

The writer has not been privileged to follow in detail many cases after the Wertheim operation, but has always suspected that, in cases where it is necessary to dissect out the ureter for such a long distance, postoperative cicatricial contractions might in some cases produce kidney and bladder symptoms.

Diseases of the lower urinary tract, particularly the urethra and bladder, are even more frequently secondary to diseases of the genital organs than those of the upper. It is a well-known fact that, if a pyosalpinx abscess lies upon the surface of the bladder, a circumscribed cystitis may be produced in the bladder in the corresponding region. The experiments of Clado have shown that, if the rectum be tied off in dogs, the microorganisms will migrate into the bladder.

Infections of the fundus of the bladder rarely produce much pain, and seldom increase urination to any great degree until they have extended to the base of the trigone, at which time they cause frequency of urination, tenesmus, pain and smarting to a degree depending on the virulency of the infection.

In a case illustrative of this point, Mrs. B., wife of a physician, presented herself at the writer's office in December, 1913. She was suffering from frequent urination. The writer examined the urethra with the endoscope and the bladder with the cystoscope. He found the urethra normal, but the bladder inflamed, the inflammation extending down from the fundus of the bladder towards the base. Examination of the genital organs revealed a growth upon the side of the bladder. At operation the writer found this growth to be a pyosalpinx, and it was removed. The bladder symptoms have since cleared up, and the patient is completely well.

Inflammations of the tube cause bladder trouble, not only by extension, but also by the fact that the tubes may become adherent to the bladder, and retraction of the inflamed areas keeps the bladder from contracting. Thus an attempt to contract it produces pain. It is therefore always well to know whether pain is at the beginning of, during or at the end of urination. If it is at the end of urination, and if of a sharp, cutting nature, you may expect it to be due to adhesions in the abdomen. If it is of a dull tenesmus-like form, it is always possible that the process is an inflammatory one.

DISCUSSION.

H. G. Wetherill, Denver: Dr. Stokes' admirable paper illustrates a broad surgical pathologic principle which has been referred to more than once today, that is the principle of infection following tension due to interference with free drainage. I have formulated a statement with reference to it. Retrograde infection is rare everywhere except in the presence of stasis or tension of the contents of the canal or cavity, unless it be carried back by instrumentation. We know this applies to the bladder. Catheter infections are very common, uterine sound and applicator infections are common. We know how this principle applies to wounds. The ordinary open wound, which has not been infected by something introduced into it, will drain and take care of itself. Retrograde infection of such a wound from the surface is rare indeed if it is not probed or injected with "antiseptic" solutions or worst of all with pyrozone. The same principle applies to the subject of Dr. Stokes' paper with the exception of tuberculosis, which may be an infection coming through the blood. Infections of the bladder as a result of disease of the female genital organs are rare, except in those instances where retrograde infections occur from instrumentation, stasis or urinary tension. If anything occurs to interfere with the free drainage of the kidney through the ureter, then infection of the kidney is easy. Dr. Fowler has demonstrated a kink in the ureter just below the kidney to which he has attached great pathologic importance. The kink Dr. Fowler has demonstrated is largely physiologic in character. Whether Nature, like the plumber, put this "trap" here for some good purpose of her own, it is impossible to say.

I want to thank Dr. Stokes for his admirable paper and express our appreciation of his visit to our Society.

O. S. Fowler, Denver: Dr. Stokes brought up a lot of things due to urinary obstruction and urinary stasis, and we can hardly appreciate the value of his paper without considerable thought in our own minds. His work is extremely valuable.

There is one point he touched on which is very important, and yet I think in the minds of general practitioners, at least, is often overestimated, and that is the effect of the positions of the uterus upon the bladder. It is undoubtedly true, according to the pictures Dr. Stokes shows, where there is prolapse or a large tumor, or other gross malposition, that the bladder is affected by these conditions, but where you have a normal or nearly normal uterus, that is anteflexed and pressing on the bladder, or is retroflexed with the cervix against the bladder, in those cases we must look elsewhere for the origin of the difficulty. It has been my experience never to have been able to prove in any case that these were real causative factors. In these cases more often a caruncle of the urethra is the cause of frequent urination, or inflammation of the trigone, and unless these conditions were excluded by use of the cystoscope, I should be loath to diagnose frequency of urination caused by the pressing of the anteflexed or retroflexed uterus upon the bladder.

Obstruction of the ureter an inch or so from its mouth is to my mind a very uncertain thing to diagnose. For instance, I catheterize a ureter and the catheter goes in all right. A few days later I catheterize the same ureter for some additional purpose and the catheter may not go in. Or I fail to get it to enter at a first examination and at a later examination it goes in. We should not make a diagnosis of ureteral obstruction because at one or two attempts we find it impossible to pass the ureteral catheter.

As to the complete examination which Dr. Stokes mentioned, I can only give it my heartiest approval. I could pick out of my records dozens of cases where operations have been done upon the appendix, or gall bladder, or genital organs of the female, or where a diagnosis of pleurisy or pneumonia has been made, and later the trouble proved to be at some other place, especially in the kidney or ureter. That point cannot be emphasized too much.

USE OF AMNIOTIC MEMBRANE IN THE PREVENTION OF PERITONEAL ADHESIONS.*

C. B. LYMAN, M.D., DENVER.

It is not my intention to go into the matter of the causation of peritoneal adhesions at this time. It is sufficient for my purpose to call your attention to the fact that adhesions in the peritoneal cavity are of very common occurrence, the result of peritoneal infection of one kind or another, and that they may be either post or pre-operative in origin.

It is a fairly well established fact that some persons are more liable to the formation of such adhesions than others, and that they may even exist in persons who give no history of pre-existing infections.

Peritoneal adhesions are productive of a great variety of abdominal symptoms, and we are often called upon to operate for the relief of distressing symptoms resulting from such a cause. The worst feature of these cases is the fact that although we may thoroughly separate the structures which have been adherent at the time of operation there is great liability to the prompt return of adhesions.

The formation of adhesions following abdominal operations is one of the weak points in our surgical work of today, and many methods have been suggested to prevent their formation. When the areas which have been adherent are very small it is possible to cover them in with the free portions of the omentum, but when the areas are large such a procedure is not possible, as it is likely to be followed by secondary symptoms worse, perhaps, than those for which operation is done.

Filling the peritoneal cavity with salt solution has been tried, but it is absorbed too quickly to be of any value. During the last few years surgeons have resorted to the method of covering the denuded areas with sterile oil or paraffin, and this method I used until December of 1913, at which time I was able to demonstrate the inefficiency of this procedure. In March, 1913, I operated upon Miss S— on account of symptoms of pyloric obstruction and faulty biliary drainage; these symptoms, as we found at operation, being the result of extensive adhesions in the upper abdominal cavity. The separation of the adherent structures was a tedious undertaking, as the liver, gall-bladder, duodenum, and pyloric end of the stomach were firmly united to each other. After freeing all the structures a posterior gastroenterostomy was done to insure proper stomach drainage. Our patient remained in fair condition for a few weeks, when she began to have severe pain in the upper right portion of the abdomen, with some jaundice and vomiting. It was evident that the adhesions had returned.

In October, 1913, I operated on her again and found all the structures in the upper abdomen again firmly adherent. The adhesions were again dissected loose and the surfaces smeared freely with sterile oil. The patient was free from symptoms for about ten days, at the end of which time they returned as severely as before the operation.

For some time I had given the subject of peritoneal adhesions considerable thought, trying to devise some method which would be of permanent value. Through the kindness of my friend, Dr. W. H. Bergtold, my attention was called to a report of the use of amniotic membrane in skin grafting done in France. It occurred to us that one might use this membrane to cover denuded peritoneal areas, in order to keep them separated until the endothelium had proliferated to a sufficient extent to cover them.

I decided to operate on this patient again and to use the membrane. This I did on December 20, 1913, two months after the prior operation, at which time I found all the structures which before had been adherent again united by firm adhesions. The structures were again carefully separated and a strip of amnion about six inches square was stitched in place, separating the liver and gall-bladder from the duodenum and pyloric end of the stomach. A second strip was stitched around the seat of the anastomotic opening; and a third was placed over the liver, gall-bladder, and stomach, separating these structures from the parietal peritoneum. It is now nine months since this operation was done and our patient has been in perfect health, having had no return of the distressing symptoms which had been in existence for a period of two years.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

The gratifying results obtained in this case led me to continue to use the method. Being unable to obtain the membrane in the fresh state at such times as I wanted it, I decided to keep it on hand preserved in some mild antiseptic solution, and after trying several methods I adopted the following. The membranes were obtained in the maternity department at St. Joseph's Hospital. The internes used great care that the membranes did not come in contact with any foreign bodies during delivery. The membranes were immediately placed in running water and thoroughly washed until every particle of blood had been removed, after which they were placed in a half per cent solution of formaldehyde in 70 per cent alcohol. They were kept thus in the ice box until required. One hour before using, the membrane was removed from this solution and placed in salt solution in order to rid it of the formaldehyde. I preserve both the amnion and the chorion and have used the latter in some cases: it is considerable thicker than the amnion and less friable. The amnion is quite thin and very easily torn while stitching it.

One should use very fine silk in stitching it in place and I have found that if the cambric needle is threaded with split silk and the silk then twisted it does away with the obstruction at the eye of the needle and there is less liability of tearing the membrane as the needle is pulled through. One of our manufacturers has recently put such silk on the market, and since then I have been using this silk entirely.

Since my first experience with its use I have operated on twenty cases in which the membrane has been employed. Most of these cases were those where adhesions had developed after abdominal operations and where the symptoms were very distressing. I will not take time to go into the history of all these cases but will content myself with mentioning four, selected because of the fact that symptoms were severe prior to operation. All of the twenty cases have been completely relieved of the symptoms which had been in existence prior to operation. Clinically the results have been perfect in all cases. I have not had an opportunity to inspect the abdominal cavity of any of these cases since the membrane was put in place. None of them have died, therefore I have no postmortem records. I believe the method to be a success from the fact that in no case has there been a return of symptoms, and that several of the cases had been operated on before for the same purpose and other methods used which were failures.

I am not able to say what goes on during the process of repair. The endothelium grows very rapidly, and if the denuded areas can be kept apart for a few days nature will by that time have covered the areas with new endothelium. I do not think the membrane serves any purpose other than mechanical, and I am not able to say how long it takes for its absorption to occur.

I have not been able to detect in any of my cases any symptoms which could be referable to the presence of the foreign material.

Here follow the histories of three additional cases:

Mrs. M—, age 48, had been a sufferer from pain in the upper abdomen for eight or nine years. At times she had attacks of severe pain, slight jaundice, and vomiting. There was distress in the epigastrium when the stomach was comparatively empty, and there was moderate retention of food.

Seven years ago she was operated upon. She tells me that her surgeon said there were many adhesions, and, although no gall-stones were found, the gall-bladder was drained. She received no relief from her symptoms, which quickly returned and had been in existence until I saw her in April of this year (1914), and of exactly the same character as before her operation of seven years ago. A diagnosis was made of extensive adhesions in the neighborhood of the gall-bladder and pylorus. Upon operation I found such a condition present, the liver and gall-bladder being adherent to the parietal peritoneum, and all the structures in the epigastric region firmly united together by a mass of tough tissue. All the structures were separated; a sheet of membrane was stitched in place between the liver and gall-bladder on the one hand and the duodenum and pyloric end of the stomach on the other; another sheet was placed between these structures and the parietal peritoneum; and a posterior gastroenterostomy was done as there was quite marked constriction at the pylorus. At this writing, four and a half months after the operation, she reports that she has had no symptoms since the operation, and that she has not been so well for nine years.

Mr. F— was operated on in May, 1913, for a ruptured gangrenous appendix with an extensive peritonitis. Since recovery from that condition he had been a constant sufferer from attacks of severe right sided abdominal pain, constipation, vomiting, and marked loss of weight. In May, 1914, he was operated on and very extensive adhesions found between the cecum, ascending colon, loops of small gut, and abdominal wall. After dissecting all these structures loose. the denuded areas were covered with sheets of amniotic membrane. There has been complete freedom from pain and constipation, and a return to normal weight.

Mrs. L was operated on seven years ago, at which time the left tube and ovary were removed and, although there was no infection present, the surgeon established drainage on account of the presence of considerable oozing of blood: infection of the pelvic peritoneum resulted. During the last few years severe abdominal symptoms occurred, including extreme constipation amounting at times to a partial intestinal obstruction: severe pain and symptoms of pyloric obstruction also developed. X-ray examinations showed an obstruction in the gut, its location corresponding to the location of maximum pain. Operation was done in April, 1914, when it was found that a loop of small gut was firmly adherent to the seat of the prior pelvic work, and that all the structures in the left pelvis were firmly united together; uterus, sigmoid, rectum, small gut, omentum, and the stump of the broad ligament. The structures were carefully dissected loose; a large sheet of membrane was placed down in the pelvis, separating the structures which had been adherent; and a second sheet was stitched around the loop of small gut over the denuded area. Since this operation there has been no return of the severe pain or obstipation.

Of the remaining patients there were three who had been unsuccessfully operated on for the removal of adhesions. The use of this membrane need not be limited to the prevention of peritoneal adhesions. I have used it in two cases to surround nerves which had been subjected to pressure; and it was used in one case between the dura and the scalp.

This method has now been used in a sufficient number of cases, and the results have been so absolutely satisfactory in every case, that I feel justified in placing it before you as a new surgical technique worthy of continued and more universal use, and one which will aid us in making our abdominal surgery more perfect and more free from distressing sequelae.

417 Metropolitan Building.

DISCUSSION.

H. R. McGraw, Denver: I think Dr. Lyman should be complimented very highly on the work he has done in this particular line. The problem of peritoneal adhesions merits the most careful and most serious consideration of all who are doing abdominal surgery. It is a great bugbear, as we know, in almost all abdominal operations. The work that has been done by Wright and Mosher and Harlow shows not only how important it is, but how hard it is to overcome peritoneal adhesions. Distilled oil has been used with paraffin and formalin, aristol and all such things, but there is not one of them that has given the satisfaction that Dr. Lyman reports in his cases. As you know, the Cargile membrane, that is, the peritoneum of the ox, has been in use, and various animal membranes have been used considerably, but I fail to find any enthusiastic reports such as Dr. Lyman gives with amniotic membrane.

Leonard Freeman, Denver: Dr. Lyman has given us something to think about and something to discuss. Dr. Lyman's ability to do surgery, which I have good reason to know is excellent, makes us consider anything that he has to say very carefully, and yet I am sure I shall be pardoned if I enter some slight criticism.

In the first place, I think that the importance of adhesions in the abdominal cavity has been considerably exaggerated. These adhesions are nature's method of preventing further damage and of protecting the rest of the contents of the abdomen. Most adhesions are absolutely harmless. Some are harmful. Adhesions occur following every surgical operation, and they have a tendency to disappear of themselves. Some do not. When they are harmful, it is up to the surgeon to try to do something to relieve the difficulty. If one operates, the adhesions generally reform, and the point I wish to call attention to is this, that when these adhesions do reform they often reform in such a way that the old symptoms are done away with. Every surgeon has had multiple experiences of this kind. He has simply divided or broken up adhesions and done nothing else, and the symptoms that were present before have disappeared. This fact should make us extremely guarded as to the claims made for any particular method of dealing with abdominal adhesions, because there are too many cures without any method having been used at all. The only way we can possibly come to any definite conclusion in this matter, among the multitude of experiments that have been made and the many methods that have been tried, is by reoperating on the cases, by observing post-mortems or by means of animal experimentation. We must also remember that every one of these methods has had much said in its praise, and that many illustrative cases have been reported in which the results were excellent, but nevertheless, the methods have not stood the test of time and use. This simply means that we must be cautious in accepting any method. It would seem that if any peritoneal surfaces were lost, peritoneum itself would be the best thing we could replace the defect with. With that idea in view, in 1894 Baum used the peritoneum of calves, and in 1892 Robert T. Morris of New York experimented with Cargile membrane and quoted many successful cases. This Cargile membrane is made from the peritoneum of the ox and preserved as Dr. Lyman preserves his amniotic membrane. Craig and Ellis of the Jefferson Medical College instituted a long series of experiments on animals and found not only that the Cargile membrane did no good, but that it actually favored adhesions. They also found the same thing to be true of any sort of dead animal tissue that was put into the peritoneal cavity, such tissue becoming a foreign body which produced sufficient irritation to cause adhesions during its absorption instead of preventing them.

Dr. Lyman's paper is interesting, although far from convincing. We may hope, however, that at some future time he will give us the results of post-mortems, reoperation or especial experiments on animals which will place his and Dr. Morris' method upon a firmer foundation.

O. S. Fowler, Denver: I should like to report the use of amniotic membrane in a manner not heretofore reported, and that is for surrounding adherent tendons of the finger. I recall a case that had been operated on some two or three years previously following an injury, dividing the tendon, and in which the adhesions had reformed. I dissected out the tendon under local anesthesia, surrounded it with amniotic membrane, and at the end of two months the man had complete use of the finger, whereas previously he had only used the second joint. I should like to make a suggestion as to handling the amniotic membrane in a case like this. Take two probes and strip it out as one would a skin graft, holding with one probe, and with the other stripping it out. You can get it out nicely. This was done.

Dr. Freeman touched upon an important point in reference to the formation of new adhesions. You may break up the old adhesions and prevent adhesions from being formed again in the same deleterious position. It does not mean adhesions will not reform, but they will reform in such a manner that the obstructive symptoms are relieved.

O. M. Shere, Denver: I wish to report one case in which we used amniotic membrane in a case of arthrodesis of the knee joint, in which almost complete resection of the joint had previously been done. A large quadrilateral piece of the entire thickness of the membrane was interposed. The operation was performed six months ago, since which time the patient has almost right-angle flexion of the knee joint, and the membrane acts as a sort of cushion, entirely different from either the fascia of the Murphy method or any other method I have ever seen before. A certain amount of fluid contained between the layers of the amnion and chorion acts as a sort of synovial fluid and accomplishes the same function as the ordinary synovial bursa.

F. N. Cochems, Salida: I have used amniotic membrane in skin grafting and fell down with it. I never thought of using it after the method Dr. Lyman has employed. There are some adhesions that produce trouble. Where we break up the adhesions and they recur, it is interesting to note that we do not have pain after many of them, but we do have pain following them in some cases, and if Dr. Lyman's suggestion proves to be right, it is valuable because we can get the membrane so easily.

Speaking of adhesions generally, the most common adhesions and perhaps the most painful are those occurring in connection with abdominal operations in the line of incision; and the omentum seems to be the organ commonly involved. Being the policeman of the abdomen, it finds its way under the edge of the incision. In watching many operators work, I have noticed they did not pay attention to the edge of the peritoneum as it is closed. Many years ago I used a method which has been used somewhat since, but it is quite a number of years since I did it. I tuck the edge of the peritoneum under, leaving the barn door open, so to speak. It has been the custom to turn the edge in to prevent the possibility of hernia. I do not think that is a point of importance, because when you turn the edges out and bring them closely together, holding the sutures quite tight, you feel the under surface of the peritoneum is smooth, and in that way you avoid adhesions which form in operative work in the abdomen.

C. B. Lyman (closing): The cases in which I first used the membrane were desperate ones. They had been operated on before by myself and others, but the adhesions had returned and existed in as bad condition as they had been before, and were producing exactly the same symptoms. It is undoubtedly true that in many cases we have adhesions reform after having separated them by whatever method we use, but whether they return or not makes no difference, provided the patient is relieved of symptoms, and that is what took place in all the cases in which the membrane was used. The first case I reported was an invalid for a period of two years, and she is now perfectly well and able to follow her occupation, which is that of a nurse. Another case was an invalid for seven years and had been operated on once before for the same symptoms as existed at the time I operated on her. This patient was operated on by another surgeon in the beginning and she received no benefit from the operation. Following the operation in which amniotic membrane was used, she has been absolutely well.

This paper is in a measure incomplete, inasmuch as I have no results of experimentation to present to you. I hope at the next meeting of this Society to be able to give you some definite information as to the result of dog experimentation.

Denver's Commissioner of Safety has made up his mind to reinstate Police Surgeons McGillivray and Preston, the District Court having ruled that he must pay their salaries, including $796.95 to each of them for the period during which they were rendering no service to the city.

EMERGENCY SURGERY, WITH SPECIAL REFERENCE TO THE TREATMENT OF COMPOUND FRACTURES.*

BON O. ADAMS, M.D., PUEBLO.

Surgical procedure may be classified on the basis of demand and necessity as elective and emergency.

To be able to decide intelligently upon the best method of procedure in cases of elective surgery requires a long and large experience and a judicial balancing of the factors presenting in the individual case.

Before undertaking elective surgery, ample time is afforded for studying the case from various angles, for weighing the clinical and laboratory findings and for determining the functional efficiency of the various glands and organs and component systems. On the other hand, emergency surgery often demands immediate decision and action, and upon the wisdom of the quickly formed judgment of the surgeon, the future comfort, health and often life of the patient depend; so that a large experience is even more essential in the man called upon to do emergency surgery than that required of the man doing elective surgery.

Yet from this very nature of the circumstances, the reverse of this requirement is entailed by the usual practice by the laity.

Time is considered so essential an element in rendering aid to the injured that any doctor is called, however poorly he may be qualified or equipped to give the best services; whereas a more careful selection would go a long way toward the comfort and safety of the patient. "Safety first" would be a wise slogan in the calling of medical or surgical assistance for the injured.

Those institutions and individuals who are to give the best service in emergency cases should be especially equipped with experience and facilities; and should be so known and acknowledged in their respective communities.

It is my desire in this paper, in addition to a few general suggestions, to submit a course of treatment in compound fractures at variance with certain dogmatic teachings in the matter.

Injuries to bones may be classified in a general way as either dislocations, contusions or fractures.

Dislocations, unless compounded or complicated with fracture, are of minor consequence and may be afforded proper treatment at the patient's home; but usually indeed, unless they be recurring dislocations, they should be reduced under an anesthetic, more especially in these days of almost absolute safety of anesthetics; this for the very evident reason that restitution to normal location may be secured with a minimum of trauma to periarticular structures under the complete relaxation of anesthesia. Compound or fracture-complicated dislocations can be cared for to the best advantage only under the favorable facilities afforded in a well regulated hospital.

Just a word should be said in passing on the necessity of X-ray verification of the findings by other methods of diagnosis. I think I am stating it fairly on the principle of putting one's self in the patient's place, when I say that "no diagnosis of fracture is complete without a skiagraphic two-angle examination of the lesion". A single-angle skiagraph is often misleading and should never be relied upon, but a right-angle picture or observation should always be made. The circumstances are very rare indeed where the excuse is justifiable that the patient can not be moved to the place where X-ray exposures can be obtained.

From a single picture you may feel justified in believing and informing your patient that everything is in good condition and that good union may be expected, but a pair of two-angle pictures will often put a very different interpretation upon the condition. Never rely upon a single angle observation.

Of fractures into and about joints, I said two years ago in a paper at the Pueblo meeting that the slender, deep threaded screw has a very wide range of usefulness and my continued experience bears out the statement, I believe, that such a screw should largely supplant the wire nail.

But to come to the portion of my subject to which I wish to give special attention, namely compound fractures. I would define a compound fracture as a solution of continuity in the bone and surrounding soft parts, which exposes the bone to the possibility of direct contamination from air or from other substances, on account of rupture in the skin, mucous membrane or enveloping fascia.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

Compound fractures are nearly always caused by external violence, and so there is usually the application to the wound of some substance which is surgically unclean.

Moreover, on account of the manner of causation, compound fractures are very often liable to be comminuted, which if the comminutions be small, denuded of periosteum, and separated from each other by interposed soft tissues, greatly complicates the injury.

On account of these complications, namely exposure to infection and the probability of comminution, every compound fracture is, essentially, a hospital case. Every surgeon owes it to his patient and to himself to insist upon the advantages to be gained by hospital care. The loss of two or three hours, or even a half day, in giving final attention to the fractured member is of little consequence if when thorough examination is made, the facilities are at hand for doing exactly the thing indicated, and not being under the necessity of saying: "If I had had this patient in the hospital, I should have treated the case differently", or "I should have had better results had I had better facilities".

It is the duty of the surgeon to insist upon the best possible facilities. There is more hazard in a compound fracture than in almost any elective operation usually performed. The soft tissues at the seat of any compound fracture are many-fold more susceptible to infection than serous sacs such as the peritoneum and pleura. It is therefore mandatory that the strictest asepsis and maximum antisepsis be employed in the primary and final care of a compound fracture. By "maximum antisepsis" I mean the employment of such means, mechanical and chemical, as will counteract any infection already implanted and yet stop short of tissue destruction.

My experience has been that the best antiseptic to use as a primary dressing as well as for cleansing the wound surfaces, deep as well as superficial, is 1¾ per cent fresh tincture of iodine diluted with an equal amount of normal salt solution. This may be swabbed freely into the compound fracture wound and the wound dressed with dry sterile gauze for temporary dressing. The fragments should now be temporarily immobilized by means of reinforced plaster of Paris cast, blanket roll, or pillow-splint for transportation to the hospital, where complete X-ray and manipulatory examination should be done and preparation begun at once for the most exacting major operation.

"Slop-sink" dressing-room facilities for the care of compound fractures must not be tolerated. The best that modern equipment and technique can afford should be employed. A Caesarian section or elective laparotomy, requiring to be operated on at the same hour, should surrender the best operating room and equipment to the compound fracture case on account of the latter's greater hazard from infection.

The process of repair in the soft tissues is identical with that in other contused lacerations and needs no special comment.

In the broken bone the osteogenic function begins at once and occurs mainly, as Sir William Macewen has established, not from the periosteum, but rather from the fresh bone surfaces, the periosteum being (especially in the adult) a limiting or retaining wall for bone growth, both in the normal bone, which is intact, and at the seat of callous formation about a fracture.

I should like to insert parenthetically my own observations relative to the contention of Macewen and the conclusion of Wetherill[1], that bone grafts are osteogenic and not osteoconducive; which contention involves the function of the periosteum. In my limited experience and observation with bone grafting, I have found regeneration to occur when graft and fragment were intimately apposed just as well when periosteum is not preserved as when it is.

Now the fact being established that the osteogenic process occurs from the fresh surfaces of all fragments, then the principle is established that as perfect alignment as it is possible to maintain most favors early and complete union.

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[1] Wetherill, Journal A. M. A., March 29, 1913. Minnequa Hospital.

My contention in theory and experience is this. The repair process, in a compound fracture as in a simple one, begins at once, and the process of establishing osteoblastic bridges between fragments is not delayed until soft parts have healed, but begins at once. Is it rational to allow nature to construct her tressle work for her new bone bridges between ill-placed comminutions, and to proceed with such repairs while the soft parts are healing and converting the compound fracture into a simple one, as we are admonished to do? I say is it rational to allow nature to get her work of repair half finished before we interfere to adjust the fragments and maintain the alignment? The work of establishing grade and tressle work must all be done over according to the re-established survey. We are told that the added trauma of immediate adjustment and retention is so great as to forbid our interfering, that we must wait for lymphatic blocking and for the soft tissues to regain their normal resistance to infection. I do not believe it. I believe that bad results following primary adjustment and retention have been due to a failure to appreciate that, in treating any compound fracture, we undertake the most serious of all major operations; we must believe that there is such a thing as absolute asepsis and prepare ourselves and our equipment accordingly. Nor may we be satisfied without the most scrupulous and painstaking cleansing of the wound, both by mechanical and antiseptic measures. Having satisfied ourselves that all possibly septic matter has been removed and having secured a perfect alignment of fragments, which in compound fractures are usually comminuted and oblique, we should not hesitate to introduce foreign material, absorbable if possible, but non-absorbable if necessary, to retain the perfect alignment we have secured. Then having established a satisfactory alignment, the work of the osteoblasts and osteoclasts once done is final. The spaces to be bridged are reduced to the minimum, and when bridged will not be ruthlessly torn up for the purpose of alignment and plating—after the soft-part wound has healed.

If on the other hand we follow the dogmatic teaching and leave the interior of our compound fractures religiously alone with oblique, overriding comminutions at indifferent angles, nature still is promptly on the job and begins her osteogenic tressle work, filling in the excessive spaces between the fragments at the same time as she is repairing the soft tissues. So that, by the time the wound has been converted into a simple fracture, the work of bone repair with ill-placed fragments is far advanced, and much mutilation must be done to correct the deformity and establish and maintain such fragment apposition and alignment as will secure a satisfactory bony union.

It is true that in primary internal splinting of compound fractures, we shall be under the necessity of subsequently removing whatever nonabsorbable material we have introduced; but that is usually a matter of only a few moments and may be frequently done under somnoform. And then, too, the usual situations of compound fractures, namely below the knee and elbow, are situations in which we rarely leave plates even if used in simple fractures, on account of insufficient depth of burial.

In conclusion let me insist that to achieve success and satisfaction in bone surgery, we must appreciate the necessity for the nearest possible approach to the "Lane technique," and in addition I would suggest, inasmuch as none of us is apt to be absolute in our execution of Mr. Lane's instrumentation, that I have found double gloves, dry sterilized and well powdered, to be almost non-puncturable by bone spiculae, by virtue of the readiness with which the outer glove slips upon the inner and the inner upon the well powdered hand. Finally my experience bids me, with less fear and more painstaking care, to make a thorough and complete toilet of all compound fractures and then adjust and retain the fragments at once, instead of delaying indefinitely, i. e., until infection subsides; for I am convinced that by such a course we get infinitely better end-results in much shorter time.

DISCUSSION.

H. G. Wetherill, Denver: Success in such cases as Dr. Adams has presented to the Society depends upon the rational application of our knowledge of correct surgical technic and principles, and particularly upon the application of our knowledge of surgical pathology.

I want to endorse what he has said with reference to the necessity for the technic of the treatment of compound fractures being essentially that of the technic of a major surgical operation. You will remember that several years ago a discussion occurred with regard to the management of emergency cases in the City and County Hospital in Denver. After all these years we may, I trust, discuss that problem dispassionately. My protest at the time was because emergency cases were taken from the ambulance into the septic dressing room for examination and treatment. In this room there was no place to wash one's hands. There was nothing but a slop sink, with a cold water tap over it. Many of you will remember the slop sink, for thereby hangs a tale. What the practice at the City and County Hospital is at the present day I do not know, but I have reason to believe the conditions have been improved.

Furthermore, I approve of what Dr. Adams said with reference to the immediate treatment of compound fractures and treating them as open wounds. An open infected wound is very much safer than a closed infected wound. An empty house is better than a bad tenant, and an open door is better than a closed one under such circumstances. We know that this principle applies to abscesses or pus everywhere. We know it applies to infections. We know that if we treat an infected wound as an open wound, with proper drainage and without the retention of secretions in the deeper portions of the wound, the patient's prospects are improved. We know we can treat compound fractures safely under such conditions; and that satisfactory union of the bones will occur.

Furthermore, we have learned to let loose bone fragments in such wounds alone and let Nature take care of them. We now know what powers of regeneration such loose bone fragments have. Mr. Macewen has taught us that we should let such loose bone fragments alone rather than remove them, because many of them become reattached, or they form foci from which new osteogenic elements emanate, and if they are going to die and be ultimately cast off, it is easy enough to take them out at a later time.

J. A. Black, Pueblo: I have listened with a great deal of interest to Dr. Adams' paper, and while I do not want to go into a discussion of compound fractures, it has occurred to me, as the doctor suggested, in regard to the treatment of accidental wounds that we as surgeons and physicians ought to insist upon the fact that they need all the care that can possibly be given to them. This has been forcibly brought to my mind through emergency surgery. We know that among the people in general the seriousness of an accident is frequently overlooked; that anybody can treat a compound fracture or a contused wound, and that for that reason we have gotten into a great deal of trouble. I tell my people the best thing to do, if they cannot reach a doctor quickly, is to let the wound alone. I do not believe in allowing the laity to do very much. Of course, there are times, as in case of transportation of the wounded, etc., when there is occasion to do something, but I believe more harm can be done with people who try to treat these cases than if they were to leave them alone. Even if you give them instructions and tell them what to do and how to do it, they do not grasp the situation as you would do.

I remember a young man who had a slag car run over his leg last winter from the thigh clear down to the heel. The injury made a badly contused and severely abraded wound, with partial laceration. Only a few days before I had instructed the foreman in first aid to the injured. Among the instructions given we spoke of using iodin. Well, they had a two ounce bottle of iodin, and put the whole two ounces of iodin on the man's wound. The consequence was we had a severe burn of the entire area involved.

In regard to compound fractures, I can agree with the doctor that they should be treated preferably in a hospital. My experience has been this, that it does not matter so much what you do as it does how you do it. I have found that many men who had not had enough experience in treating fractures tried to do too much for these cases. My experience has been that the chances for infection are not great if the parts are not manipulated too much. If you can get the parts quickly and accurately adjusted, or as soon as possible, cleansing the parts and using any antiseptic you may select, the result will usually be good. I thoroughly agree with the doctor that the time to put up a compound fracture is at the first opportunity in a convenient place. I do not believe in delay. I think in some cases it may be advisable, but in the majority of cases the time to treat a compound fracture is as soon as possible after you get it.

What Dr. Wetherill said about leaving in small fragments of bone is correct. We know the importance of that in treating compound fractures of the skull. You frequently leave in pieces of bone which are almost ready to drop out, and yet they become firm. The object in treating a compound fracture of the skull is to leave as small an opening as possible.

Leonard Freeman, Denver: I was under the impression that that old goat was dead, but his tail still wags, as is very evident from the remarks made by Dr. Wetherill regarding the City and County Hospital of Denver. Dr. Wetherill says he does not know anything about the Hospital at the present time; but I do, and I want to say that the compound fractures taken care of in the Denver City and County Hospital are treated as well as in any place of which I know, in spite of what the goat may have to say to the contrary. The subject of compound fractures is worthy of discussion.

Dr. Wetherill: Are the patients taken care of in the septic dressing room?

Dr. Freeman: They are taken to the dressing room first, and then, after inspection, to the operating room for treatment. As I have said, the subject of compound fractures is worthy of discussion, and in addition I wish to say that I have some profound convictions on the subject.

There are two kinds of compound fractures, one from without inwards, and one from within outwards. Those from within outwards come, for example, from a fall, when the bone sticks through the skin. Those from without inwards are usually in the nature of crushes, as when a man is run over by an automobile or a street car. In the latter there is always infection, while in the former there is often, but not always, infection. It is necessary, however, to consider every compound fracture as an infected wound. We cannot look at it in any other way. Dr. Adams speaks of putting something into a compound fracture, an infected wound, to hold the bones in position. Anything we put in becomes a foreign body. A nail, a wire, a screw, or even a bone graft is a foreign body, and a foreign body will, if there is infection, not only increase the virulence of the infection, but prolong it. So strongly has this been recognized at the present time, that some of our best authorities, among them Dr. Murphy, for instance, bear down heavily on the point that nothing should be put in in a case of compound fracture. If we get bad results, he says, it is better to correct them afterwards than to put any foreign body in at first. I do not think that view is generally accepted, but nevertheless it deserves our attention. It is true that whatever foreign body we put into the wound has to come out again if the wound becomes infected. If it is wire, it has to come out; if it is a nail, it has to come out; if it is a Lane plate, it has to come out; and even bone grafts generally work out in an infected compound fracture. If everything we put into such a fracture has to come out again, what is the object of putting in something which must be removed by a special operation? Such an operation is dreaded by the patient, ofen requires an anesthetic and may endanger life by infection or otherwise. What is the use of putting a foreign body into the wound when it is possible to hold the bones in position by the use of an external clamp? The same thing has been emphasized recently by Lilienthal and by others. I wish to refresh your memory on the proposition of the external clamp. I wish to call your attention to the way in which an external clamp holds the bones together as firmly as does a Lane plate. (Dr. Freeman here exhibited the specimen illustrated in the accompanying figure.) The screws can be put in at a distance from the fracture, sometimes so that they are even in sound tissues, clear away from the compound fracture. The screws can be taken out at any time without the use of a general anesthetic and with very little inconvenience to the patient. If we find the fracture is going wrong from suppuration, we can immediately and easily take the screws out. Great harm has often been done by using Lane plates in compound fractures. I have seen two cases in which the limb has had to be amputated because of such use of Lane plates. I am sure Mr. Lane would hesitate himself to bury a plate in a deep compound fracture of the thigh, as I have sometimes seen done. Let me assure you that an external bone clamp of this kind will hold the bones just as effectually and with much less danger, and in addition can be taken out at any time, easily and almost painlessly.

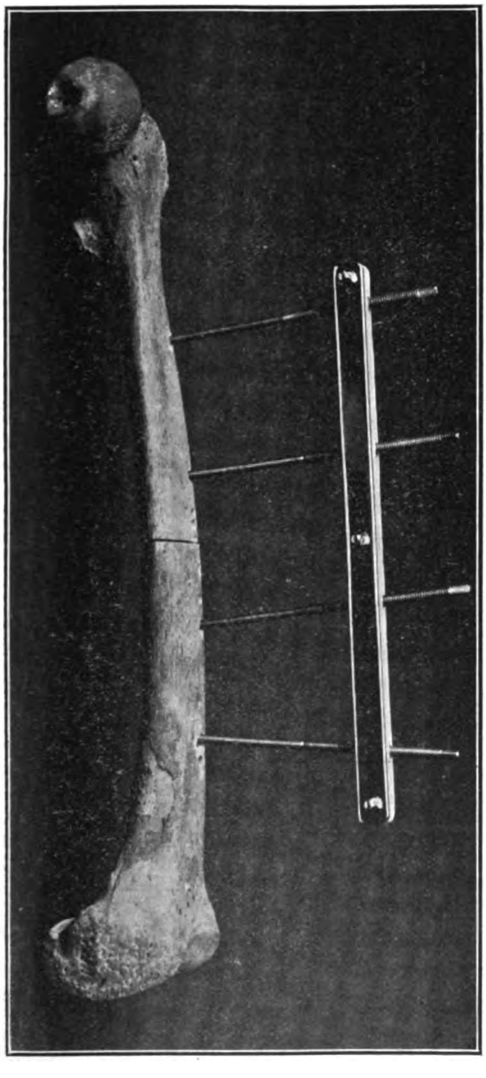

Figure Illustrating Discussion by Dr. Freeman of Dr. Adams' Paper.*

W. W. Grant, Denver: I have, in a paper read at Pueblo two years ago, endorsed the clamp and screw in preference to any direct exposure and manipulation of the fragments involved. I believe the reasons given by Dr. Freeman are good and sound. The truth is that today, but for the medicolegal phase of the matter, there would be very little operative interference in fractures, except in the use of methods of extension and splints. We get good functional results with considerable deformity, as the X-ray shows and but for exposure by the X-ray we should not hear so much about direct operative intervention in fractures. Whenever a simple fracture is treated and the union is not so satisfactory as we could desire, and requires operation, we hesitate seriously to do it, and even then with the clamp and screw it is not necessary to expose the seat of lesion. They can be applied by a simple puncture, and even where it is necessary to make a free incision and expose the ends of the bone, I believe still a method of this kind, applying these things through an incision, knowing you have adjusted the fragments properly, is better and safer than to use a plate because the plate under such conditions frequently has to be removed by future operations, while the screw and clamp can be removed easily at any time. If everybody had as perfect a technic as Mr. Lane, there would be less danger or risk in adjusting these fragments, but the average surgeon does not possess that technical skill, and he is the one who is constantly treating these cases, and that method which promises the least infection, the least trouble, is it seems to me the procedure of the future.

Frank N. Cochems, Salida: Given a case of compound fracture, it is perhaps less serious in the arm than the leg. I suppose a great number of the compound fractures we have to deal with are fractures of the fibula and tibia. The question of whether the wound should be opened and the fracture treated directly or secondarily seems to be the one to be settled. I do not think any one would operate and try to unite an infected wound.

Dr. Freeman says there are two kinds of compound fractures, those from within outward, and those from without inward. In other words, the bone passes out, or something passes in. In every case, it seems to me, we have an infected wound. We have a peculiarly infected wound, in that we have the tissues so lacerated, hard and soft, that any one who opens the ordinary limb or leg with both bones fractured will find it is impossible to clean out the shreds of bone which have been perhaps jabbed into the dirt. It is impossible to clean the fragments whether they are two or more. Therefore, when I get an infected wound, or a contused or lacerated wound in the leg or upper extremity, it is my practice and has been for many years, not to close that case, but under the greatest amount of scrubbing, which may last for over three-quarters of an hour, in a clean operating room, I endeavor to clean these wounds to a finish with soap and water, and then have the wound put in a big wet dressing, and if it is a compound fracture let it drain out. I do not close it. In these cases where there is so much jamming and smashing of a leg or foot, it is not an easy matter to clean the wound satisfactorily. You may get union once in a while by closing these wounds, but commonly the swelling and all that sort of thing will preclude it.

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*This clamp can be obtained of W. H. Lauth, 1632 Court place, Denver.

I was in the Mayo Clinic several years ago when Dr. Charles Mayo had a smashed foot to deal with, which was the result of a railroad accident. His assistant washed the wound thoroughly, and he began closing the different lacerations in the foot with silkworm gut, and I suggested to a friend that I did not think that was the right way to do, but that we should leave that open, no matter how much tissue was exposed and how much skin was broken. He did not think it was right, and in a few minutes Dr. Mayo began to take the sutures out. You cannot cleanse lacerated wounds if you devote two hours to trying to do it, even though exposed in every way. Why not put them up in a wet dressing in the best possible position after thoroughly cleaning and apply iodin in whatever per cent. you please? If they are in good position and do not have extension you may get a good result. If necessary, you can make extension after the method of Bardenhauer.

As to the point made by Dr. Wetherill as to taking patients into the pus room, I have been a crank along that line. More than twenty-two years ago in the hospital with which I was connected we got many cases of compound fractures. In many of them we got infection when the work was absolutely aseptic or antiseptic as we thought. I concluded the infection was due to the interns. We had no gloves in those days, but the younger men who assisted in the operations had been in the pus room of Numbers 1 and 2 wards. When I became senior and was on duty there was a fight. I would not allow the interns who had been in the pus room to take an active part in the treatment of these compound fracture cases, and the consequence was we began to have better results.

As to the treatment of these cases by Mr. Lane, I saw him operate a few months ago and I never saw the wonderful technic we hear so much about. His technic is simply this, that he does not touch the wound except with instruments, and that is the principle upon which he works and has such excellent results. But I did not see such wonderful technic. I think Murphy is nearer right.

C. E. Tennant, Denver: The use of water and other solutions for the purpose of washing these open wounds has been discussed here this morning, and while there are many of these cases brought into our hospitals with the clothing and even the wound covered with dirt, and this dirt even ground into the lacerated tissues, it is an open question as to whether the washing of the wound is the best procedure, even if it were possible to remove the dirt by such procedure.

Dirt is not necessarily infective for these wounds any more than are other foreign bodies, but we do know that if the pyogenic organisms are brought into contact with the tissues the results are very definite. I am therefore not in favor of the scrubbing, scouring or even washing of these open wounds for the removal of dirt and gravel. I believe that in following this method of washing we dilute and wash away the blood, serum, and other protective agents which nature has provided for such emergencies, and these agents not only aid in fixing the ineffective organisms where they are, but are also bactericidal. To me it seems much better to use some chemical agent like iodine, covering the naked tissues and fixing the infective material just where it is, rather than spreading it broadcast over the lacerated and low-vitalized, traumatized area for more serious complications. Tissues so traumatized and afterwards smeared with bacteria are certainly most excellent culture media. I do not advocate the leaving of blood clots wherever it is possible to remove them without inserting the forceps directly within the depths of the wound. Again the less manipulation we use the less trauma shall we have to the damaged tissues. These tissues have as a rule been sufficiently damaged by the original injury, and it may be all they can do to recover from this injury, let alone any further manipulation or insult. I also believe it to be a mistake to bring a patient with a compound fracture directly into a dressing room which is or has been used for pus cases, for I am more fearful of pus than I am of street dirt. My idea of the care of these cases is to take them directly into the operating room, and before the clothing is cut away if possible gently swab the wound and the surrounding skin with tincture of iodine.

This brings up the question of first aid to the injured. I have seen these crushed extremities come into the hospital in an ambulance, simply strapped to a pillow with the strap binding the dirty clothing or blankets to the lacerated tissues, or covering the protruding end of the broken bone; no thought having been given to the protection of the wound, an equally important matter with that of bone fixation. Dr. Black referred to the accident which occurred in his experience when a companion poured the tincture of iodine over the injured employé. I believe in many instances it would be better to take the chances of the burn, rather than have a serious infection in these open wounds. The burns can be avoided by using a weaker solution of iodine and in the large manufacturing centers as well as in the country, a three to five per cent solution could easily be provided and kept for just such emergencies. Such a precaution will go a long way toward preventing serious infections in these compound fractures. The slogan nowadays is "Safety first," and first aid I regard as extremely important in securing this "safety first."

George W. Miel, Denver: As to the classification of fractures into simple and compound I think we have a better one. For some years a number of surgeons have felt it more appropriate to apply the terms "closed fracture" and "open fracture." "Simple fracture," as applied to a closed fracture, is not at all adapted to many; considerations of their treatment imposing concern in varying degree.

With reference to compound fracture: The term is not descriptive; though understood as fracture in which a wound communicates, associating the danger of infection. In emergency treatments of compound (open) fracture, Keen has aptly said that the fate of the patient often depended on the condition of the first finger that entered the wound. A great deal can be said upon the care of an open fracture from the start. Dr. Friedrich Dennis, in his System of Surgery, 1895, did much to improve technique; and his statistics, based upon 1,000 cases under his own observation during the decade previous to 1890, the most valued at the time, are probably unexcelled today. His immediate procedure in emergency embraced wet antisepsis and was entrusted to the ambulance surgeon to be employed without the hospital when occasion suggested, before transportation and admission. This, though not generally practiced today, having given place to other procedure, has probably not been improved upon if we judge by results. It can be said, however, for the dry method, including the use of iodine, that it is much more convenient.

Nothing has been said with reference to the care of these patients after they leave the operating room. I mentioned this at our Pueblo meeting. Compound (open) fracture involves more often men engaged in more or less hazardous occupations. When admitted to a hospital they are apt to be treated in the general ward. Seepage is usually associated, which may establish a tract of communication through the dressing between the wound and the bed or its covering. If so the mattress and its protective cover and the bedding may not meet our desire for strict cleanliness; and assuming we have been clean in the operating room may adversely affect our result.

O. M. Shere, Denver: The discussion of this subject has already been prolonged, but I cannot let the opportunity pass without making a certain statement with reference to the compound fractures that have been treated at the City and County Hospital of Denver. I wish to reiterate what Dr. Freeman has already said, and that is that we have just as good results in compound fractures at the County Hospital as elsewhere, notwithstanding the fact that the cases are taken to the pus room for the first examination.

I think that what has been said with reference to pus rooms, washing the wound, etc., is highly exaggerated. The important factor is the man behind the gun. It is not the room, the ward nor the operating room, but it is the man. Twelve years ago I attended a meeting of the American Medical Association where a heated discussion took place with reference to the treatment of appendicitis. Various men expressed their ideas as to how to treat appendicitis with peritonitis, and how to leave it alone, and others revolted against certain established dogmas, and so the same thing takes place in every Society when the subject of compound fractures is taken up. I believe Dr. Adams commits a great error when he establishes a rule for all compound fractures. Every compound fracture must be treated individually. You cannot generalize. You cannot adopt a rule for every fracture. While one method would hold true in some cases, it may be absolutely contraindicated in others. The first and foremost thing to bear in mind is to do very little mutilation, whether it be by washing or by scrubbing, as we used to do years ago. Scrubbing the limb with a stiff brush and mutilating everything in addition to the mutilation that has already taken place is irrational. The cardinal principle underlying the care of these fractures is the exercise of individual judgment in each case. As I have said before, it is the man behind the gun.

Bon O. Adams (closing): I expected to be jumped on rather vigorously, but I did not expect to drive the "goat" out. Owing to the lateness of the hour, I shall not attempt any refutation, but simply say "what has been written shall remain, not be erased or written over again." I believe what I have said, despite the arguments to the contrary. I believe a great many of the gentlemen who have disagreed with me will agree with me on further investigation.

I should like to say that the gentleman who made the remark that perfectly clean work was done without gloves is mistaken. That is absolutely impossible.

I accept Dr. Miel's classification as a much better one than the one I suggested.

I am not going to occupy any further time except to reiterate that I believe what I have written, and furthermore I believe that time will bring the best surgeons to more careful and painstaking technique in primary handling of compound fractures, which is the plea of my paper.

CYCLOPLEGIA AND SKIASCOPY IN REFRACTION.*

C. A. RINGLE, M.D., GREELEY.

In this paper I wish to enter a plea for more careful and scientific work in refraction and for a better knowledge of the physiology of the eye as a dioptric medium and highly specialized part of the human organism. The ophthalmologist may well regard seriously a branch of ophthalmology constituting three-fourths of his work, by which he may extend the usefulness of individuals, contribute to their happiness, stop nervous leaks, and increase the prestige of medicine. The demand for relief from refractive errors is universal, and yet it is a notable fact that physicians who limit their work to the eye would differ widely in prescribing for an individual case, while frequently the general practitioner is indifferent to the methods of all who assume the responsibility of doing refraction. Various new systems have been exploited by charlatans, who profess to be able to refract without the use of drugs, with the aid of some apparatus involving a "newly discovered principle" which is manufactured and sold by optical instrument houses. These delusions, like the nostrums concocted for the general profession, have insidiously made their way into ophthalmic practice, and so contaminated it that basic principles are forgotten.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

Two methods of refraction are recognized by ophthalmologists, known as the subjective and objective methods. Many refractionists use the subjective to the exclusion of the objective, while others use both methods together. Some depend for the final correction on the objective findings, but more use the objective only as a "clew," depending upon the subjective method to work out the final results. Cycloplegia is the cornerstone of all work in refraction of the eye, as recognized by medical authorities and practiced by ophthalmologists. Its theory is expounded by all authorities in ophthalmology, but the practical application necessary to obtain the exact findings and give the desired results has been greatly neglected. The routine practice of the study of the eye under cycloplegia should convince any ophthalmologist that the practice of skiascopy is an essential adjunct to cycloplegia.

A number of writers of otherwise very complete works devote several pages to the theory of skiascopy, and say it is simple and easy and that the refraction can be quickly determined, but give no practical application of the theory, leaving this to be wrought out by those who are sufficiently interested. One writer mentions the practical application of skiascopy in only a single short paragraph. The work edited by Norris & Oliver deals extensively with the practical phases of this subject, in a chapter by Dr. Edward Jackson. Two or three others quote Dr. Jackson concerning the practical application of the theory of skiascopy, which is given fully in his complete work on that subject.

There are two reasons why skiascopy and cycloplegia should go hand in hand in studying the eye to determine its refraction. First, skiascopy is conducive in itself to supplying the auxiliary conditions favoring complete relaxation of the ciliary muscle, including what is known as the residual cycloplegia. Quiet and tranquillity are brought about by the shutting out of distracting conditions. Where the test is made with the lenses and trial card, we have the distraction of light, noise and perhaps the presence of a third person. The patient is further distracted by the feeling of responsibility in endeavoring to decipher the blurred characters at twenty feet, and the resulting nervous tension stimulates any remaining latent activity of the highly sensitive ciliary muscle. After studying the trial card for some time the perception of the patient becomes educated to interpreting the blurred letters correctly, without the acuity of vision due to the normal refractive state. Second, in skiascopy the progress of the action of the drug in inducing cycloplegia is actually observed objectively.

It is not to be supposed that an irritable, overwrought ciliary muscle demanding relaxation and rest is not congested, nor that it will always respond promptly and symmetrically to the most powerful cycloplegic. In one hour after the first drop has been applied, we may observe the pupillary area, as a very indefinite and unsatisfactory appearance, indicative of the refractive condition. Spasm of the ciliary muscle with the attending congestion will present many permatism. This latter changes into a more regular pupillary image simulating myopia, plexing appearances, chief of which are hazing of the pupillary area, with appearance of bands simulating irregular astig- which as relaxation ensues emerges into a case of simple hyperopia or hyperopic astigmatism. Mixed astigmatism has been observed at this stage in a large number of cases, and often it has been necessary to continue cycloplegia for several days, when the myopic appearance of the reflex finally disappeared and we found only a case of simple hyperopic astigmatism, with axis in the opposite direction. Whenever skiascopy shows myopic astigmatism, simple or mixed, of one diopter or under, repeated sittings should be had, over a period of two or three hours, or the patient should be asked to come on the following day, until the reflex becomes clear and fixed, and the myopic correction is determined by the physician and positively accepted by the patient. No prescription for these myopic conditions of one diopter and under should be given without the safeguard of cycloplegia and repeated skiascopic observation.

While this method requires only the simplest apparatus, certain physical conditions should be carefully studied and applied, to make the work practical and efficient for the physician and agreeable to the patient. Ventilation is the first consideration. It is to be remembered that the room is closed to make it dark, while we have within the emanations from two persons, and often a large gas burner. The entire consultation or operating room may for the time being be converted into a dark room by efficient means of quickly darkening the windows, while around the doctor, patient and lamp may be drawn a dark curtain to shut out remaining light and reflections from objects in the office, and to furnish a dark background. A comfortable chair, the position of which may be easily changed, should be provided for the patient. A trial card placed at the opposite end of the room, which should be twenty feet long, should be provided with good electric illumination controlled by a convenient switch. These arrangements enable the physician to conveniently check up his dark-room findings at the trial case without moving his patient. The electric light is convenient, but for illumination the Argand burner, with a shade giving light from an aperture, is superior to all other lighting arrangements for exact skiascopic work.

The choice of the cycloplegic depends principally upon the time during which it is necessary to use it. I now have in my files records of over two thousand cases of refraction, of which perhaps three hundred were cycloplegic through age, while in the larger proportion of these cases either atropine, homatropine or scopolamine was used, and all were carefully studied with the skiascopic mirror. The majority of these cases were successfully refracted under homatropine, the progress of its action being observed and the refraction fully determined by skiascopy. A small quantity of a fresh solution of homatropine is kept on hand for office use, the formula of which is:

Homatropine	gr. j
Cocaine	gr. j
Distilled water	f. dr. j

Of this solution, one drop is applied to each eye at intervals, until five applications are made in the course of one hour, allowing the drop to flow over the cornea where possible, and holding the tear duct shut with the finger. The applications are made as follows: The first three applications at intervals of five minutes each, the last two at intervals of ten minutes. The early frequent applications give the advantage of the cumulative effect of the drug. The last two applications intensify and prolong the effect. After the fifth application is made a period of from fifteen to twenty minutes will elapse before it is possible to begin an examination from which we can draw definite conclusions. The case in hand is now one for special study for the time being, and it should be remembered that we are not dealing with a photographic camera, but with an organism of flesh and blood in its entirety. As homatropine is as prompt in its action as is possible for any cycloplegic whose effect is transitory, skiascopic observation should be begun at the expiration of the hour, and continued at intervals until we have determined positively the nature of the refractive error and the maximum degree.

At this stage of the examination various difficulties may present, chief of which is hazing of the cornea with lowering of the vision through crumpling of the epithelium, the result of the devitalizing action of the cocaine, spasm of accommodation and irregular relaxation of the ciliary muscle. If hasty attempts were now made to determine the refraction, gross errors would result, for either subjectively or objectively false refractive conditions are manifest; but by the objective method of examination the correct status of the refraction is finally recognized and interpreted by the experienced refractionist. Time and continued observation are required to finish the work. If the trial card and reflex findings are unsatisfactory and indefinite as to whether there is a myopic instead of a hyperopic astigmatism or whether the axis is oblique instead of vertical or horizontal; or if the patient is tired, nervous or manifestly preoccupied, another sitting should be had the following day, the drops being given to the patient and he being instructed to apply one drop at bedtime, another in the morning on arising and again upon starting for the office. A night's rest for the physician and patient, with several applications of the drops in the meantime, has often enabled the physician to make a clear and positive interpretation of the skiascopic appearances, whereas on the previous day the physician was baffled in his endeavors to arrive at a decision.

Homatropine, used after this method, is rapid and positive in its action. Its effect can be prolonged, though this is not often necessary, and recovery is rapid. It is desirable to use atropine only in those cases in which we wish prolonged cycloplegia. In a small percentage of unsatisfactory cases, where the trouble was found to be due to causes outside of refractive conditions, and in which homatropine had first been used, atropine used later failed to demonstrate its superiority over homatropine.

Scopolamine is known as a powerful cycloplegic. A single drop of a half of 1 per cent solution instilled into the eye will maintain cyclopegia for several days. It is believed by some to be superior to atropine, having a more profound effect. Owing to its lasting effect and its reliability, it is useful to apply at the office when we wish to precede refraction by several days' relaxation and do not wish to entrust the patient with the medicine.

I have encountered no attacks of glaucoma accompanying or following cycloplegia, though no ophthalmologist should forget his responsibility in selecting his cases for this method of examination. Whether the patient is 45 or under, careful inspection should be made, the history carefully noted, and if desirable, especially when the patient is 45 or over, cocaine or euphthalmine may be used to obtain dilatation sufficient for a fundus examination, before a cycloplegic is used. Every case of refraction should be done under cycloplegia, unless there are specific contraindications. In those past 45, however, we may rely on the cycloplegia of age, with careful skiascopic observation and mydriasis only. In 3 per cent of the so-called presbyopic cases conditions rendered cycloplegia necessary and homatropine was used successfully. In the case of a presbyope, 58 years of age, who read the smallest type at twenty feet, I was unable to unmask any refractive error, though he suffered with all the symptoms of eye strain. He had repeatedly consulted a specialist of prominence, and when he came for treatment was wearing plus one-fourth diopter sphere for distance, obtaining some relief. I observed and treated him for two years before homatropine was used. He was then at the age of 60 and his refraction showed: O. D. plus 0.50 sph. with plus 0.75 cy. axis 180°; O. S. plus 0.50 sph. with plus 1.25 cy. axis 180°. This was prescribed with the usual deduction of 0.25 D. from the spheres, and relief from all symptoms was obtained. Unless appearances manifestly contraindicate its use, we consider homatropine perfectly safe, when we remember its transitory nature, and knowing that in eserine we have a powerful miotic which will overcome the physical conditions induced by dilatation of the pupil, if there should be pain with rise of tension.

Cycloplegia performs its most important work in unmasking slight errors of refraction, first relieving the congestion and relaxing the spasm found present in a large proportion of these cases. Skiascopy enables the physician, through his skill in observation, to make a correct interpretation of conditions and determine the correcting lens, far better than the untrained perception of the patient will permit.

In performing this work, two short passages from Charles A. Oliver will vouch for the importance of its accuracy: "In the correction of ametropia almost right is of a more serious nature for the patient's good than greatly wrong. There can be no other rule than absolute certainty in all ametropia estimation, in spite of the daily practice of busy medical men who, through excuses of waste of time, etc., endeavor to dissuade their patients from measures that are necessary to obtain the most certain of results." Referring to the symptomatology of simple hypermetropia, he says: "The minor degrees of the condition produce all manner of local and general disorders that vary with the idiosyncrasy (age, condition, mode of life, etc.) of the patient."

It is in these small errors of refraction of three-fourths diopter and under, that I have observed the severest symptoms, and of the greatest variety, affecting profoundly the circulation and innervation of the eye; such as chronic conjunctivitis, injection of the bulbar conjunctiva and the papillitis and retinal fatigue more commonly observed in these than in the higher refractive errors. In looking over my records I find that 30 per cent of all my refraction work has been where the error was only three-fourths diopter and under. This percentage is made up of 10 per cent each of simple hyperopia, simple hyperopic astigmatism and compound hyperopic astigmatism. A small proportion of the corresponding myopic conditions —5 per cent of the grand total—were under three-fourths diopter. This brings the total of low refraction errors of three-fourths diopter and under to 35 per cent, or more than one-third of all cases of refraction. The manifest refraction before cycloplegia was entirely negative as to the nature or degree of the error in the greater majority of the hyperopic cases.

Not all of the symptoms of eye strain are manifest in an individual case. Vision may be very acute, and inspection may reveal nothing of any significance; yet that individual, having exhausted all other resources, comes to the oculist for relief from one or more symptoms of eye strain. If the patient sees well at twenty feet, and reads as well without a lens as with at that distance, he probably has some form of hyperopia. Perfect vision, with failure to manifest any refractive error without the combination of cycloplegia and skiascopy, may be attributed to the final focal adjustment of the eye under the powers of accommodation, with inability to relax to any lens which may be placed before it. In such a case skiascopic measurement under cycloplegia will reveal a refractive error possibly of three-fourths diopter or under, the correction of which will relieve the symptoms and increase greatly the patient's efficiency for work.

Another class of these patients will have lowered vision, often out of all proportion to the refractive error finally determined. If any lens is accepted before cycloplegia, it will be a minus sphere or a minus cylinder at axis 180 degrees, the patient manifesting more or less indecision. Fundus examination reveals the characteristic woolly appearance of the retina, more or less papillitis is observed and vision is lowered either from spasm of accommodation, retinal congestion, or both. It is of the greatest importance that these cases be observed and studied objectively, and they are always the ones demanding the most time and care in making the examination, so that the last state of the patient may not be made worse than the first. Prolonged cycloplegia should be maintained, and repeated sittings should be had, making a careful skiascopic study of the refraction before the correcting lens is finally prescribed.

In a previous paragraph, high authority has been quoted relative to the seriousness of low refractive errors; and other authorities agree that the greatest activity of the ciliary muscle, and the accompanying disorders, are more often induced by refractive errors of low degree; hence the importance of exact work both in observation and measurement. This exact work cannot be attained subjectively; for subjectively the patient is educated to correctly interpret a blurred image, while objectively, the skilled oculist correctly interprets the refractive state and degree. From the foregoing conclusions, exact work appears of equal importance in refractive errors of greater degrees, so that a higher refractive error shall not be converted into a smaller one whose effect will be to harass the nervous system. This applies especially to determining the astigmatic error in compound hyperopic astigmatism.

The usefulness of skiascopy is admitted by all in dealing with children, illiterates, the amblyopic, the mentally defective and a large class of patients who are dull of perception. It is for these most difficult cases, if for no others, that the technique of skiascopy needs to be mastered by its routine practice upon all cases of refraction.

It is to be regretted that oculists who aspire to do exact work are unable to follow their work more systematically, and to learn the results of their careful procedures. The unavoidable later maladjustment of lenses before the eyes, the breaking of a lens, or an acute conjunctivitis may turn the patient in the wrong direction for relief. Having observed many of these cases for a long time, it is interesting to note the permanency of all hyperopic conditions. While the slightest pressure of the tip of the finger upon the eyeball will induce a marked artificial astigmatism, it is remarkable that many who have been perfectly fitted will return years afterward wearing the same correction with perfect comfort, no perceptible change of the refraction having accompanied the vicissitudes of the general organism.

In doing refraction, we need to be enthusiastic in performing our arduous tasks. The importance of this work is everywhere in evidence, and it must be done efficiently to maintain a high standard for ophthalmology. The work is essentially educative to all our patients if properly conducted, and more especially so to the very large proportion of intelligent people with whom this work brings us into contact, including many of scientific training. I have found teachers especially interested in the various steps of the examination, and they are now taught the principles of refraction and the symptoms of eye strain in children, and are thereby placed upon the right side of the problems involved in this subject.

DISCUSSION.

E. R. Neeper, Colorado Springs: I think this whole thing gets down to one's personal ideas and personal means of reaching a desirable end, and while I feel that skiascopy is a thing of very great importance and a thing that we must depend upon very greatly, yet my own idea is that the trial case test is the final one, and that we do depend on it when it comes down to detail. Now, on the statistics of cycloplegics: In my mind, there is a great deal of difference between cycloplegia and mydriasis, and I think very often we fall down on our cases because we do not have a sufficient cycloplegic action, and I know that as for myself, the longer I work and the more I work, the more I go back to atropia. I am using lots of it, and will use more next year than I have this year. I think we can uncover refractive defects under atropia better than under homotropine. There are many statistics that will back me up in this conclusion. It is not absolutely necessary that we use all the correction we find under either of these drugs. But, if we know the full defects that we are to deal with, certainly we are in a position if we choose to lessen our findings to a point of desirability; and, if we are uncertain within one or two degrees of the axis of our cylinder, certainly the drops most completely controlling any focusing action of the crystalline lens are the better ones to use. We get the most pronounced cycloplegic effects from atropia.

I think, too, a thing we do not consider as we should, in our trial case work and, in fact, in most of our work with patients, is that a very large proportion of our results is due to the individuality of the operator; that one man may get but little out of a patient while another may get much. We may not get the patient's attention or may not have the patient giving us his best judgment, and because of these things we do not work to detail as fine as is easily possible. I have seen men refracting a case and heard them say, "Is this better?", "Is this better?", in such a manner that the patient was not stimulated to work carefully and was not impressed with his responsibility and as a result his replies were of an indifferent nature and unreliable. I question the advisability of using as much cocaine as Dr. Ringle advises. I believe 1.6 per cent cocaine is much stronger than should be used in refraction and I think we shall get less trouble in the cornea and quite as complete mydriasis with a lesser percentage of cocaine in the homatropine solution.

W. H. Crisp, Denver: I think that if Dr. Ringle will substitute another grain of homatropine for the grain of cocaine that he uses to the dram, he will have no crumpling of the cornea. A strong homatropine solution without cocaine will give better results than the weaker solution with it. Dr. Ringle spoke of carefully closing off the tear duct by pressure. I would rather hold the upper lid up against the upper margin of the orbit than hold the tear duct, for this reason: If you put in one drop of homatropine solution, you very seldom will produce any toxic effect in a patient unless very young, whereas if you do not keep the eye open while you put the drop in, you are apt to have so much squeezed out that you do not get enough action. One good drop of homatropine solution put in every five or ten minutes for from one-half hour to an hour, waiting a further half hour or so before beginning to refract, will usually give complete relaxation.

Edward Jackson, Denver: I think that something of Dr. Ringle's trouble with skiascopy was due to the cocaine. The influence of the cocaine on the cornea would gradually pass off within an hour or two, whereas its influence on the ciliary muscle and the pupil would remain many hours after that. I think that accurate results in measuring refraction depend on spending a rather large proportion of the time over the minute final determination of what the refraction is. If you can come within one-half diopter or ten degrees within ten minutes, and spend another three-quarters of an hour or an hour in making the exact determination, you will be very much more likely to be accurate than if you spend one-half or three-quarters of your time in getting pretty near it, and then take only a few minutes in making the final determination. That is one reason for sending the patient away and getting him back fresh; and one way of saving time at the trial case and of contributing to accuracy is by using skiascopy before the pupil is dilated. If you get a pupil that will dilate to 6 millimeters in diameter in a dark room, you have a pupil large enough to determine the meridian of astigmatism. When you have got that, you can determine the amount with a great deal of certainty. Until you have gotten the direction of the meridians you are all at sea, and skiascopy with the pupil undilated will give you the axis almost always more quickly than it will after the pupil is dilated, and you can be more certain in moderate degrees.

C. A. Ringle, (closing): I see that my subject is easily a source of endless discussion; for the simple reason, as Dr. Neeper suggests, that our work and understanding of it must depend largely upon our own personal equation, and that there are various methods of obtaining our results. I would not have it understood that I rely entirely upon skiascopy because the trial case used after the best methods is a very important adjunct, but I have endeavored to show in the paper that skiascopy is a very important adjunct to cycloplegia and the trial case.

News Notes

On July 22nd and 23rd, under the auspices of the Colorado Ophthalmological Society, the "Colorado Ophthalmological Congress" met in Denver. The meeting was an eminently successful one, and the hope was very generally expressed that the congress would become a perennial institution. Under the presidency of Drs. Edward Jackson of Denver, Harold Gifford of Omaha, H. W. Woodruff of Joliet and F. Park Lewis of Buffalo, nineteen papers, covering a wide range of ophthalmological topics, were read by well-known men from all over the United States. Colorado was represented on the scientific program by Drs. Edward Jackson and E. R. Neeper. The total registration at the congress was sixty. At noon on the 22nd Dr. D. H. Coover entertained about sixty guests at an excellent lunch in the University Club. In the evening of the 22nd, after an automobile drive, various members of the local society entertained groups of the visitors at dinner. In the evening of the 23rd, a large party of members and visitors drove over the mountain park roads to Mt. Genesee, returning by way of Morrison, where dinner was had. Further entertainment was provided at Colorado Springs by the local members.

Dr. D. A. Strickler, secretary of the state board of medical examiners, has had his hands full taking care of the fight against the fraudulent petition to refer the new medical practice act. The petition apparently illustrates the very worst forms of abuse of the referendum privilege. The better class of osteopaths are not associated in this scandaalous attempt to keep the doors of irregular practice wide open. Dr. Strickler found it necessary to deny publicly statements contained in an alleged interview with him which was given out by the secretary of the Drugless Healing Association.

Dr. J. L. Weldon has resigned his position under the Denver Health Department.

The suits of four physicians, Bartz, Nelson. Raymond and Haskell, against the town of Windsor for services rendered during the epidemic of scarlet fever there last year, were set for hearing on the 28th of last month. Each of the physicians named refused a proffer of about $25 in lieu of the amount of $50 to $125 claimed by him.

On July 7th the Garfield County Medical Society was entertained at dinner by the Glenwood Hot Springs and Hotel Company. The dinner was followed by a dance in the ballroom of the Colorado.

In a recent letter to his wife, Dr. W. A. Jolley of Boulder describes his work with the American Red Cross at a Serbian military hospital at Belgrade. The hospital has a capacity of 500, but after a recent battle had 900 inmates.

Dr. G. B. Eusterman of Rochester, Minn., was recently a guest of Dr. and Mrs. J. M. Foster.

Drs. I. B. Perkins and John A. McCaw of Denver recently held Sunday gospel meetings in the tabernacle at Brush.

Dr. J. E. Peairs of Pueblo has been appointed a member of the general committee of the National Conference on City Planning.

Drs. W. E. Thompson and B. Woodcock of Greeley have been appointed members of the local county lunacy commission.

Dr. Victor C. Vaughn, ex-president of the A. M. A., and his wife, together with Dr. R. W. Corwin of Pueblo, were guests of Dr. R. E. Holmes of Canon City on the Vaughns' way back from the San Francisco meeting of the A. M. A.

Dr. Linn Emerson and his wife, of New York, were the guests of Dr. and Mrs. F. R. Spencer of Boulder at the time of the meeting of the Colorado Ophthalmological Congress in Denver. A Boulder newspaper reported that Dr. Emerson and Dr. Spencer had been "in Cheyenne for several days attending the Colorado Congress of Eye Specialists."

Drs. Lazell and Carmody of Denver were the guests of the Teller County Medical Society at a meeting with Dr. C. J. Howard in Cripple Creek on July 10th.

Dr. A. H. Darrow, who had charge of Dr. A. I. Hayes' practice during the latter's illness, has taken over the practice of Dr. D. S. Lee at Victor. Dr. Lee has gone East to take up postgraduate study.

Dr. G. D. Dulin of Las Animas recently enjoyed a fishing trip to the headwaters of the Laramie river with several Denver physicians.

Dr. and Mrs. A. L. Kennedy of Denver made an automobile tour of Colorado in the early part of July.

Dr. T. H. Close of Parker has disposed of his practice to a Dr. Money.

Dr. N. W. Bellrose and his family, of Eaton, are making a long stay on the western coast. Dr. H. C. Scarborough of Denver is looking after Dr. Bellrose's practice.

Dr. and Mrs. G. S. Foster of Fort Collins are in California on business.

Dr. C. G. Parsons and wife, of Denver, returned the first of this month from a three months' trip to the San Francisco exposition and other Western points.

Dr. C. M. Scholl has returned to Oak Creek after a long visit to his mother and brother at Henryville, Ind.

Dr. A. L. Davis of Durango was recently called to Arvada by the death of his mother.

When this issue of the journal appears the editor of Colorado Medicine will be camping with other members of the Colorado Mountain Club near the headwaters of Clear Creek.

Dr. J. A. Patterson of Colorado Springs was quite ill for a short time on the occasion of his attendance at the Colorado Ophthalmological Congress. Dr. Patterson and his wife were the house guests of Dr. and Mrs. W. A. Sedwick.

Dr. H. S. Canby of Denver spent the third week of July on a fishing trip.

Dr. L. L. Patterson of Denver is away for a prolonged stay on the Pacific coast.

Dr. J. S. Fox of Silverton is now in Europe serving with the Red Cross.

Dr. W. O. Sheller has returned from a postgraduate course in Chicago and resumed his work in Lamar.

Dr. E. E. Bartelt of Lamar, who has been seriously ill, is convalescing.

Dr. Jessie Stubbs, La Junta, is convalescing from a four weeks' siege of septicemia.

Dr. H. K. Porter of Delta recently underwent an operation at the Mercy Hospital, Denver.

Dr. F. N. Cochems was slightly injured, on July 13th, by the accidental explosion of a shotgun cartridge. He received an injection of serum as a precaution against tetanus.

Dr. C. H. Burvenich was found dead in his office in the Temple Court building, Denver, on July 3rd. His death was reported as due to dilatation of the heart from chronic alcoholism.

Dr. Franklin Robinson of Crook was drowned on July 2nd in a vain attempt to save the life of his son Guy, who had been swimming in a duck pond connected with the North Sterling ditch. Dr. Robinson, who was 56 years old, leaves a widow and two other children, aged 13 and 16, respectively.

Dr. H. K. Braisted of Delta died on July 23rd as a result of cerebral and internal injuries sustained in an accident occasioned by his team running away.

Colorado Springs Notes.

Dr. Frank L. Dennis and family spent the month of July on a camping and fishing trip in the mountains.

The infant daughter of Dr. and Mrs. C. S. Morrison of Colorado City died recently and was taken to Fayette, Mo., for burial.

Among those who attended the lecture on "Preventative Medicine" at Pueblo on the evening of July 22nd, given by Dr. V. C. Vaughn of Ann Arbor, Mich., were the following: Drs. Trossbach, Daniels, Boyd, Mayhew, Moses, Morrison and Gilmore.

Dr. and Mrs. J. B. Crouch spent a portion of the month of July in Boulder and Denver.

Dr. W. A. Jayne of Denver was a guest of the El Paso County Medical Society at their new library quarters on the evening of July 30th.

On July 31st the doctors and lawyers of Colorado Springs played their annual baseball match. The doctors lost by 3 to 23. Health Officer Gillett's part in the game was utilized by the local wits for some puns about the muzzle. Thus, from a local newspaper: "One hound strayed into the game and saw 'Doc' Gillett in a muzzle—now every dog in town is going around with a grin from ear to ear."

Mrs. F. A. Faust, wife of Dr. Faust, is in Beth-El Hospital convalescing from a serious operation.

Dr. and Mrs. P. A. Loomis are on an automobile tour of the state.

Medical Societies

COLORADO OPHTHALMOLOGICAL CONGRESS.

The first meeting of this congress, arranged by the Colorado Ophthalmological Society, was held in Denver on July 22nd and 23rd, 1915.

The scientific proceedings of the congress included the reading of the following papers and their discussion:

1. Carcinoma, Apparently Primary in the Uveal Tract; by Edward R. Neeper, Colorado Springs.
2. Peripheral Annular Infiltrate of the Cornea Following a Scleral Perforation; by Francis Lane, Chicago.
3. Albinism in Man and Animals With Special Reference to the Eye; by William E. Gamble, Chicago.
4. The Blind Spot; by H. S. Gradle, Chicago.
5. Complete Left Lateral Hemianopsia With Glycosuria as a Result of Slight Trauma; by F. E. Woodruff, St. Louis.
6. Mydriatic Action of Dextro Hyoscyamine; by Meyer Wiener, St. Louis.
7. Conscious Vision in Development of Amblyopic Eye; by F. Park Lewis, Buffalo.
8. Is Migrain a Forerunner of Glaucoma? by Robert S. Lamb, Washington.
9. Trephining Versus Iridectomy in Glaucoma; by H. W. Woodruff, Joliet.
10. Mule-Shoe Drain for Chronic Glaucoma; by A. E. Prince, Springfield, Ill.
11. Concerning the Surgical Treatment of Retinal Detachment; by Edgar S. Thomson, New York.
12. Business and Office Methods in Special Practice; by Linn Emerson, New York.
13. Arrest of Cataract at an Early Stage; by E. L. Jones, Cumberland, Md.
14. Management of Eyelids During Cataract Operation; by D. T. Vail, Cincinnati, Ohio.
15. The Routine Treatment of Senile Cataract by Expression With a Sliding Conjunctival Flap; by Harold Gifford, Omaha.
16. Use of Lead Styles in Treatment of Stenosis of Lacrimal Duct; by H. Moulton, Fort Smith, Ark.
17. Traumatic Rupture of Eyeball, Complete Aniridia; Preservation of Lens With Practically Normal Vision; by D. F. Harbridge, Phoenix, Ariz.
18. Ocular Tuberculosis Caused by Tuberculosis of Neighboring Sinuses; by W. H. Luedde, St. Louis.
19. Juvenile Recurring Hemorrhage, Massive Exudation and Tuberculosis of the Retina; by Edward Jackson, Denver.

WM. H. CRISP, Secretary.

Book Reviews

Diarrheal, Inflammatory, Obstructive, and Parasitic Diseases of the Gastro-Intestinal Tract. By Samuel G. Gant, M.D., LL.D., Professor of Diseases of the Colon, Sigmoid Flexure, Rectum, and Anus at the New York Post-Graduate Medical School and Hospital. Octavo of 604 pages, 181 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth $6.00 net; half Morocco, $7.50 net.

This new work by Gant is a fitting successor to his former book upon Constipation and Intestinal Obstruction. It is a treatise that has long been needed, as it brings under one cover all the details of diagnosis and treatment.

Heretofore it has been an arduous task to look over the current literature for an article upon some particular form of diarrhea.

The various forms of toxic diarrhea are exhaustively treated and every detail of differential diagnosis given.

The chapters devoted to diarrhea in acute infections such as measles, scarlet fever, pneumonia, and typhoid fever, and to compensatory diarrheas as those occurring in old age, Addison's disease, diabetes, exophthalmic goiter and burns, are highly practical.

In the treatment by irrigation of some forms of diarrhea I feel that this work is to be especially commended; this is surely a rational method and one that has been found to give excellent results. I have devised an apparatus for irrigating these cases as well as those of colonic stasis in which more pressure is used than is mentioned by Gant, the pressure increasing the efficiency.

For the busy practitioner the chapter devoted to various formulas covering every phase of the medical treatment of diarrhea will prove of great value.

The book contains fifty-two chapters, the last four being devoted to the various surgical methods involved.

The volume would gain by greater conciseness. The entire work, however, is written in a pleasing style, and treats so thoroughly of this interesting and important subject, that the book is one which should be in the hands of every physician and surgeon.

A. H. E.

Modern Aspects of the Circulation in Health and Disease. By Carl J. Wiggers, M.D., Assistant Professor of Physiology in Cornell University Medical College. Octavo, 378 pages, illustrated with 104 engravings. Cloth, $3.75, net. Lea & Febiger, publishers, Philadelphia and New York. 1915.

The lively interest in cardiac physiology and pathology is reflected in the voluminous literature and a rapid succession of new books devoted to these subjects. Of these, some are designed as text-books with the aim of reviewing and digesting current literature, others as monographs comprising chiefly personal contributions. The present volume is planned as a combination of these, and, with a critical review of the literature upon various problems, contains frequent reference to the author's efforts toward their solution and his conclusions therefrom. His view point is that of the physiologist rather than the clinician, and cardiac physiology receives a major share of his attention.

The book is divided into three sections. Of these the first is pure physiology, dealing with the properties of cardiac muscle, the mechanism of valve action, pressure changes in the heart, and the mechanisms of blood-pressure and blood-flow. The second is devoted to a critical discussion of the mechanics and accuracy of various forms of apparatus by which the circulation and heart action may be studied in laboratory or clinic. Here are included the various types of sphygmograph and polygraph, the electrocardiograph and orthodiagraph; registration of the heart sounds and of the apex beat, the oesophogram, and a chapter on sphygmomanometry. The interpretation of data obtained by such methods is explained and some of the clinical limitations of the methods noted. In the attempt at comprehensiveness, this section necessarily suffers from a lack of detailed account of any of the procedures and a correct balance between the practical usefulness of instruments and the space given them is sometimes lost; as, for instance, when the highly useful Mackenzie polygraph is dismissed with a brief paragraph, while the clinically impractical segment capsule method of Frank receives extended mention.

In the third section the various clinical types of circulatory pathology and abnormality are considered in turn in the light of modern conceptions of cardiac physiology. The correlation of physical signs and symptoms with the evidence instrumentally obtained, though promised by the introduction, is not very thoroughly carried out. As is true of the second section, the attempt to attain a comprehensive view of the entire subject in a limited space has resulted in a presentation which is in no sense exhaustive, but which nevertheless contains many helpful suggestions for diagnosis and treatment.

As a whole the book is a very good, compact presentation of the subject, and its chief faults arise from a sometimes too zealous effort to eliminate elementary detail. Certain minor criticisms may be made. The illustrations of apparatus are often so reduced as to render them practically valueless for practical study. The diction occasionally leaves one in doubt as to the author's meaning, as in the statement, on page 307, that, "While cardiac insufficiency sometimes occurs in normal hearts, it is always the sequel of hypertrophy". Among the conditions accompanied by hypotension, it is surprising to find no mention of disease of the adrenals. The reproductions of tracings are excellent, and the inclusion of a classified and well considered bibliography adds materially to the reference value of the book.

C. N. M.

Fractures and Dislocations, Diagnosis and Treatment. By Miller E. Preston, A.B., M.D., First Lieut. M. R. C., U. S. A.,; Surgical Examiner Colorado State Board of Medical Examiners; formerly Police Surgeon City and County of Denver; Instructor of Anatomy, University of Denver, and Visiting Gynecologist to City and County Hospital. Publishers, C. V. Mosby Company, St. Louis. Price, in cloth, $6.50.

Dr. Preston has given to the profession a very comprehensive work in this subject, not only valuable to the surgeon, but to the teacher, general practitioner and student. He has made a very careful study of the arrangement of his text and handles it in such a manner that no time is lost in obtaining the point sought. The classifications and descriptions are very clear and concise and at the same time fully cover the subject. Dr. Preston has had a world of experience in this work and has been most painstaking in collecting the clinical cases and illustrations which make his book so valuable. The illustrations are all from his own collection and represent the work of many years.

The time-honored. academic classification of fractures under one heading and dislocations under another has been abandoned, and the more practical method of considering the injuries according to the region in which they occur has been followed. Thus the reader will find all the injuries to which a given region is subject, including fractures, dislocations, joint-fractures and fracture-dislocations, without looking up the different conditions in widely separated sections of the book or even consulting another volume. The arrangement of the chapters is original and far surpasses that of any other work on the subject. Each chapter begin with sufficient of the surgical anatomy of the region to explain the mechanism of the injuries and reviews the important surrounding structures which may suffer at the time of the accident or during treatment. The pathological changes are clearly described. The symptomatology is most completely covered, and "diagnosis", "treatment", "operative treatment", "after treatment" and "prognosis" are each accorded a separate heading; .thus the meat of the subject is very accessible.

The chapter on operative treatment is conservative and to the point and is handled in a very scientific manner.

The chapter on head injuries shows very careful study. The all-important differential diagnosis is very ably portrayed and deserves special mention.

The chapter on bone grafting is up to the minute and gives a splendid insight in the advancement of this line of work.

The chapter on the use of the Röntgen ray was written by the late Dr. Geo. H. Stover, one of the foremost authorities in this line of work.

H. R. McG.

The Collected Papers of the Staff of St. Mary's Hospital (Mayo Clinic), Rochester, Minn., 1913-1914, published by W. B. Saunders & Co., Philadelphia, Pa. Cloth $5.50, half Morocco $7.50.

The volume for 1913 came under the name of "The Collected Papers of the Staff of St. Mary's Hospital." The title page of the volume for 1914 refers to it as "The Collected Papers of the Mayo Clinic."

The latter is apparently the title chosen after due deliberation for the subsequent annual volumes to be issued by the Mayo Clinic. Alterations and expansion in the work of this clinic have evidently influenced the selection of the name. With a research department, experimental laboratories, and an intimate association with the University of Minnesota, brought about through the donation of an endowment fund of two million dollars, the scope of the work of the Mayo Clinic will doubtless be considerably changed, so that the old title, "The Collected Papers of the Staff of St. Mary's Hospital," would be inadequate.

The 1913 volume is an octavo of 819 pages, with 335 illustrations, and contains contributions by 28 members of the staff. Both volumes are edited by Mrs. M. H. Mellish. In these works will be found many admirable illustrations by the artists connected with this clinic. Those contributed by E. Fry, presenting the admirable characteristics of the school of Becker and Broedel, are particularly clear and helpful in interpreting the text. The paper is good, the margins are wide and the print distinct. The books are excellent examples of the book-maker's art.

The volume for 1914 is uniform with its predecessors in style and binding. It contain 349 illustrations and 814 pages, and is contributed to by 31 members of the staff. The papers deal with questions of diagnosis and technic, and a wide range of diseases, chiefly of a surgical type or at least with a surgical aspect. The enormous amount of material which passes through this clinic every year and the spendid coordination and cooperation among the workers make it possible for the Mayo clinic to give the medical world much valuable material.

The usefulness and worth of these volumes has grown with great rapidity from year to year. In them many valuable suggestions of an eminently practical kind may be found.

The work on internal medicine, general diagnosis, genito-urinary diseases and in the X-ray department is quite as good in its way, and as helpful to the medical and surgical world at large as in the departments of surgery and pathology. The paper by Louis B. Wilson and Ivan W. McDowell on "The Relationship of Gastric Ulcer and Gastric Carcinoma" and that upon "The Pathology of Early Gastric Carcinoma," read by Wilson before the Colorado State Society at its Boulder meeting, should be helpful to every physician and surgeon. The surgical papers upon diseases of the stomach and gall-bladder and the thyroid and prostate glands present the last word in the management of these diseases. The 1914 volume is quite up to the standard set by its predecessors.

H. G. W.

A Manual of Personal Hygiene: Proper Living Upon a Physiologic Basis. By American authors. Edited by Walter L. Pyle, M.D., Philadelphia. Sixth edition, revised and enlarged. 12mo. of 543 pages, 138 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $1.50 net.

This is a well-compiled manual, and will be found very useful in a home or as an aid to a teacher.

It begins with the physiology and hygiene of the teeth and gastro-intestinal tract, gives descriptions of the diseases of the teeth with directions for their care, and enumerates the different factors that influence digestion, as appetite, meals, drinking water, diet, the use of alcohol and other stimulants, together with bathing or exercise near the time of eating. The next chapter speaks of the skin and its appendages, giving their anatomy and physiology. It includes bathing, selection of proper clothing and shoes and care of the hair. The following chapters give respectively the hygiene of the vocal and respiratory apparatus, of the ear, of the eye and of the brain and nervous system. These subjects are gone into rather extensively and technically for a book of this sort.

Chapters on physical exercise, home gymnastics, body posture and domestic hygiene, with a chapter on food adulteration and deterioration, by Harvey W. Wiley, are clear and valuable. The last chapter is new to this edition and much increases the value of the book for use in the home. It gives the hygiene of infancy.

M. R. S.

International Clinics; A Quarterly of Illustrated Clinical Lectures and Epecially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Volume II, Twenty-fifth Series, 1915. Philadelphia and London: J. P. Lippincott Company.

The present number of the International Clinics contains six papers under Diagnosis and Treatment, six under Pediatrics, six under Medicine and six under surgery. As of special interest may be mentioned "The Cerebro-spinal Fluid in Diagnosis", by Charles Clyde Sutter; "The Diagnosis and Treatment of Arteriosclerosis", by Byron Sprague Price; "Diagnosis of Tuberculous Joint Disease in Children", by E. W. Ryerson; "A Case of Cancer of the Pancreas in a Nine-year-old Boy", by Samuel C. and Lever F. Stewart; "Psychoanalysis: Its Scope and Limitations", by A. A. Brill; and "Intranasal Frontal Sinus Operations: Conservative Surgery", by William Lincoln Ballenger.

Alveolodental Pyorrhea. By Charles C. Bass, M.D., Professor of Experimental Medicine, and Foster M. Jones, M. D., Instructor in the Laboratories of Clinical Medicine at the Tulane University Medical College, New Orleans, La. Octavo volume of 167 pages, with 42 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $2.50 net.

A very opportune book, as it places all of the facts regarding Endamoeba buccalis which are known to the medical and dental professions in concrete form. A good book for both physician and dentist, wheher we can fully agree with the author or not. Chapter V. on Contagiousness and Chapter IX. on Prophylaxis could be read by every layman with benefit. Although a great number of the facts presented are not original they are given in a new way and furnish us food for thought.

The cuts are mostly original, and those made from drawings are especially good.

T. E. C.

Colorado Medicine

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Editorial Comment

BRING THE LADIES TO THE ANNUAL MEETING.

Indications all point to a highly successful annual meeting of the State Medical Society in Denver on the 5th, 6th and 7th of the coming month. As already stated, Dr. W. T. Councilman of Harvard Medical College will address the society. Of most of the general scientific program account has been given, in the form of the abstracts which were printed in our August issue, as supplemented in the present number. The headquarters for the meeting will be at the Albany Hotel.

The local Committee on Arrangements has made careful preparation for the entertainment of the visiting ladies. This entertainment will occupy the afternoons and evenings of the meeting days; leaving the mornings free for shopping and private visits. On the afternoon of the first day the visiting ladies will be taken for an automobile ride, showing Denver and surrounding points of interest. In the evening of this day the members of the Society will attend a scientific meeting at which there will be addresses by distinguished guests. During this meeting the ladies will be taken to a moving picture performance, and at ten o'clock there will be an informal party with dancing and a Dutch lunch in the Cathedral Ball Room of the Albany Hotel.

On Wednesday afternoon the ladies will attend a matinee at a local theater. On Wednesday evening at 9 p. m. the president's reception and ball will be held.

MEDICINE IN EARLY ENGLAND.

Most human beings find more or less pleasure in anecdotes of their own childhood days. In much the same way there is for medical men a fund of interest and amusement in surveying the records which have been handed down to us concerning the practice of medicine in ancient times.

Medically speaking, the United States are the lineal descendant of the England which was blended out of Saxon conquered and Norman conquerer. The earliest evidence of the practice of the healing art in Great Britain is the existence of remains of medical instruments and appliances dating from the three centuries during which England was a settled Roman province. There is good reason for believing that the English law preserved a continuous descent from Roman days through the more or less barbaric period of Saxon settlement which followed. Greenwood (The British Medical Journal, August 7, 1915), thinks that the well-known rule of the Royal College of Physicians of London that fellows of the College cannot sue for their fees may point to a similar ancestry of medical England in the "medici" of ancient Rome. He also somewhat discounts the common view that general practitioners of the present day are the descendants of the old barber surgeons and apothecaries.

There is evidence to show that at least since the time of the Norman conquest there have been recognized medical and surgical practitioners altogether distinct from the barber surgeons and apothecaries. Domesday book contains the following entry: "Nigel—Medicus—5 Hydes of land in demeenes in the hundred of Scipe". A "surgeon" (not "barber-surgeon") was admitted to the freedom of the City of London under date of 1312, and coeval with the Company of Barbers there existed in the City of London another fraternity or guild—that of the "surgeons", in no way connected with the barbers.

Chaucer's "Doctour of Physik" practised both medicine and surgery, and so must have been a general practitioner.

"In all the world ne was there non him lyk
To speke of Physik, or of Surgerye—"

Langland's "Vision of Piers Plowman", in which all classes of the community are reviewed, refers to "physicians", but not to "surgeons" as a special class.

At a time when "fine feathers" were socially the uniform of "fine birds", the physician of Chaucer and Langland must have been a person of some social distinction. Thus of Chaucers' "Doctour of Physik" we read:

"In sangwin and in perse he clad was al,
Lined with taffata and with sendal".

Langland's verse suggests that there must have been in his day many quacks and unscrupulous physicians. Thus his allegorical personage "Liar", being sought by the king's officers for immediate execution, is offered shelter by the physicians:

"Then the doctors heard of this, and wrote
Liar letters
To come and stay with them, and study
men's water—"

Again:

"Many doctors be murderers (God mend
them),
And men die through their drinks, ere destiny would have it—"

Langland, however, was even more unkind to the lawyers and clergy of his day than to the physicians.

The physician of Langland's time included the horoscope and natural magic among his armamentarium. Medical practice consisted largely of drugging, and Chaucer suggests that there was an understanding between the doctor and the apothecaries to make as much profit as possible out of the public.

In spite of the general belief that the practice of medicine in early times was mostly carried on by monks, neither Langland nor Chaucer makes any reference to the practice of medicine by the clergy. The practice of surgery was finally forbidden to monks by the Council of Tours, A. D. 1163.

WHO PAYS FOR THIS JOURNAL?

Who pays the cost of printing and publishing Colorado Medicine? On seeing this question the reader, if a member of the State Medical Society, will be pretty sure to answer, "Why, I do, of course!" It is true that Colorado Medicine is supported in the first place out of a per capita fund set aside each year from the members' subscriptions. But the amount thus appropriated falls materially short of paying the gross expenses of maintaining this journal. The person who cooperates with the members of the society in providing the necessary sum is the advertiser.

It would be in many ways agreeable if Colorado Medicine could be issued entirely without advertising. But our resources are so substantially increased from this direction that no such plan is or is likely to be in contemplation. It is therefore right that every member of the society should be constantly and definitely conscious of the benefit which he derives from the advertising pages. He should glance through these pages every month, note what advertising has been added or withdrawn, and should feel a personal obligation to satisfy our advertisers that their money is well spent.

The advertising in Colorado Medicine could be considerably increased if the State Medical Society and its publication committee were willing to accept unethical and undesirable advertisers. But the society and the committee have adopted a high standard in this matter, a higher standard, in fact, than has so far been adopted by a number of other state medical journals, to say nothing of the great majority of those conducted by private enterprise.

Our advertising offers products which may be depended upon. Advertisers usually keep careful note of available indications as to the value of their advertising. They greatly appreciate letters of inquiry or requests for samples, and each individual member of the society can help his own official publication by writing an occasional postal card, or filling in and sending coupons, to the firms which advertise with us. The time required is insignificant. All that is needed is the willingness to devote a modicum of energy to this means of assisting the Publication Committee, which is anxious to produce the very best medical journal financially within its reach.

Original Articles

TUBERCULIN TREATMENT.*

JOHN F. McCONNELL, M.D., COLORADO SPRINGS.

To write the story of the therapeutic use of tuberculin is no simple task. One might easily consume the allotted time in but a brief summary of its enthusiastic reception, its subsequent rejection, the period of indifference and the renaissance in which its therapeutic use has been co-extensive with the rapid increase of institutions devoted to the care of the phthisical.

At the outset let me emphatically state that I thoroughly believe that therapeutic use of tuberculin is completely out of the field of doubt, and that I must base my faith entirely on clinical evidence. As to animal experiments, I quickly admit that it would be of great value if tuberculin could be firmly established on an experimental basis, but as far as I know no one has succeeded with tuberculin in curing tuberculous guinea pigs or completely immunizing normal guinea pigs against tuberculosis. I feel it incumbent upon me here to state that, so far as I have been able to observe, tuberculosis in guinea pigs is not clinically that of man, nor is the experimental infection of larger animals always comparable to the mode of infection in human beings. Inasmuch as the use of tuberculin is thoroughly empirical and most of the evidence when analyzed reveals but impressions, one must necessarily conclude that it is the bedside data by which tuberculin therapy must stand or fall.

Any endeavor to obtain the specific treatment for a disease rests fundamentally upon the clear understanding of the causative agent involved and of the intricate mechanism of its action. How does tuberculin measure up to this criterion?

Tuberculin is not a cure for tuberculosis, though the ultimate object of giving tuberculin therapeutically is to heal a tuberculous lesion. Since tuberculin does not directly neutralize or inhibit any poison, it is not antitoxic; nor is it bactericidal in the sense that it directly and immediately exerts a pernicious influence on the tubercle bacillus. However, this we do know: that tuberculin possesses a marked characteristic specificity, this being shown by the production of a certain reaction when injected into the tuberculous, the features of which are well known to you and are briefly local, focal and constitutional. One may successfully controvert the theory of antibodies and the presence of the antituberculin of Wassermann, but the specificity of the tuberculin reaction and the fact that this is due to the contained tuberculo-protein have been conclusively proved.

The Choice of a Preparation.

As it has been clearly shown that the substance which produces the specific reaction is the protein of the tubercle bacillus, therefore any product containing this protein fulfills the conditions. Tuberculin may be conveniently considered in three groups according to the methods of preparation, namely—

1. Extract, O. T., for example.
2. Endoplasm, T. R., for example.
3. Extract plus endoplasm, B. E., for example.

They are all satisfactory tuberculins if they contain tubercle bacillus protein, and the test of the presence of the protein is their ability to produce the specific reaction.

It being generally conceded that the tuberculin reaction is a hypersensitive one, similar to the hypersensitive reaction to other foreign proteins, it is an advantage to have the protein as pure as possible and free from admixture of other proteins. The idea of preparing a tuberculin from a culture grown on an albumose-free medium has been worked out and the product placed on the market by

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

Meister, Lucius and Brüning. This preparation, known as A. F., emphasizes the value and growing importance of the albumose-free preparation. I have for years used O. T., B. E. and B. F., but latterly most of my patients have had A. F. administered to them. It is worth remembering that there are patients displaying marked sensitiveness to one preparation who will tolerate another satisfactorily.

With this preamble let me proceed to the consideration of the practical exhibition of tuberculin, feeling that if the results are satisfactory we shall use tuberculin, whatever we may think of the theories as to its mode of action, since no intrinsic harmony of theories will force us to use tuberculin if the results do not please us. Tuberculin is usually injected under or into the skin, though the oral method of administration has in my experience given good results, especially with children. In the matter of dilution it is worth while stating that one should prepare his own dilutions, and I would urge especially that they be not only sterile but constantly of uniform potency. No dilution of tuberculin can comply with this demand if it is older than three weeks. Treatment with tuberculin is readily controlled and gives better clinical results if the tuberculin be regarded as a curative agent. One will no longer seek to inject the largest possible doses. The idea of active immunization looms too large in the treatment of tuberculosis. The attempt is made to reach in the course of treatment maximum doses corresponding to very strong concentrations of tuberculin, on the ground that such maximum doses are alone of vaccinal value. The view is carried to the point of maintaining that very attenuated dilutions of tuberculin are therapeutically inactive, and in order to reach quickly dilutions which are considered active, treatment is commenced with relatively strong concentrations of tuberculin. There is a dosage called the optimum dose, which is pivotal in tuberculin therapy. The optimum dose is revealed clinically by the favorable therapeutic effects which it determines. In cases in which the administration of tuberculin is justifiable, a slow disintoxication of the system is promoted by the repeated action of the optimum dose; the weight and appetite increase, strength returns and more slowly the focal signs improve. As soon as any one of the symptoms of this disintoxication becomes clinically perceptible in the course of treatment, the administration of the optimum dose should be continued while its beneficial effect persists. In order to avoid the risk of going beyond the optimum dose, which is often very minute at the beginning of treatment, the following indications may be of guidance:

1. The weaker the dilution that yields a response, the more precarious is the general condition of the patient and the more marked are the lesions.

2. The motif of tuberculin therapy is time. It is a method of treatment which only slowly realizes its therapeutic effects. It is desirable, therefore, to state before commencing treatment that tuberculin must be continued for at least six months.

3. Begin by injecting a small quantity of diluent. In this way the psychology of the patient may be estimated. It is well to give at least two injections in this way. I have found that the administration of tuberculin develops two types of patient, one of which is prone to attribute every symptom of the interval to the tuberculin, while the other is most reluctant to admit even a reaction, reminding one of the Irishman who, when asked if he had told the examining doctor of his pain, replied, "No, not wishing to give him a hint!" The administration of the diluent alone is of value in differentiating the types. The experienced tuberculin therapist will very soon classify the patients receiving specific treatment into three groups in respect to their hypersensitiveness, viz., the highly sensitive, the moderately sensitive and the weakly sensitive. The ideal method, therefore, of estimating accurately the optimum dose for beginning treatment is the quantitative test. This has not been satisfactorily worked out as yet, though the procedure of Römer is of great value, and I feel sure that this method will very shortly supersede the present empirical one. The empirical method consists in the administration of 1/20 cc. of

the dilution which experience has taught us will produce no reaction. Repeat on the fourth and seventh days, maintaining this interval until the optimum dose is reached, when a weekly interval should be established. Thereafter increase the preceding dose of tuberculin by 1/20 cc. When the optimum dose shows itself by a favorable therapeutic effect, however slight, keep to that quantity as long as its favorable action persists.

In the course of treatment reactions should be avoided. Reactions are the evidences of an excess of tuberculin and indicate that the optimum dose has been passed. With the observance of these indications tuberculin therapy becomes a perfectly safe method of treatment and the maximum curative properties of tuberculin are at least utilized. Amelioration where arrest is impossible cannot be demanded of tuberculin therapy in all forms of tuberculosis. Even when rationally applied, tuberculin has only a limited curative power. In fact, tuberculin is best described as a whip to the patient's natural protective powers, and it is especially a favorable factor in those patients of the rocking-horse type, going up and down, declining but slightly, yet making no real progress. Stated broadly, only those patients are susceptible of amelioration or arrest in whom the means of defense under the specific stimulant action of tuberculin are still in a condition to master the bacillus, to destroy the toxins and to cicatrize the lesions which the bacillus has provoked.

Unfortunately we have no means of foretelling whether a course of tuberculin will be therapeutically successful even in a relative degree. We cannot know the result until the trial is made.

The less effectively an organism defends itself against tuberculous infection the less also will be the success with which the use of tuberculin is followed. This is why treatment with tuberculin is not justifiable in those acute forms of tuberculosis which, at the onset, cause a profound lowering of the general condition and a rapid invasion of the organs. Nor should it be used for those tuberculous patients who after a more or less prolonged resistance have exhausted their defensive resources and whose dissolution is imminent.

One cannot repeat too often that the chances of success in tuberculin therapy are increased by intervening as soon as tuberculosis is diagnosed or even suspected. It is in these circumstances that tuberculin exerts its specific effects and the best and most lasting results are achieved.

818 North Cascade Avenue.

DISCUSSION.

Henry Sewall, Denver: There seems to me no better criterion of the essential intellectual qualities of a physician than the way in which he estimates and uses vaccine therapy. Granting that the results from vaccine treatment now and then seem to show that even today we may realize the ideal of specific medication, and that therefore the intelligent physician must take under consideration the advisability of using vaccines in a wide variety of infections, he who presumes that biological therapeutics, except in two or three directions, has reached anything like mathematical constancy but dangerously deceives himself.

In short, I venture the opinion that the typical vaccine devotee has changed the name of his fetish but remains in the same intellectual class as his aboriginal cousin.

Dr. McConnell's paper was charming because of its therapeutic sanity. Whatever may be the ultimate opinion of tuberculin therapy, most observers today would probably agree that tuberculin treatment is much more remedial for certain patients than for others. That is, did we but know enough, our tuberculous patients might be divided into at least two classes; in one tuberculin treatment is indicated and in the other not. For some time past I have tried to find some objective criterion by which the indication for tuberculin treatment could be determined.

I beg to state my tentative conclusions with the hope that others with broader opportunities may be induced to try them out. Thus, we know that the development of fibroid tissue in the tuberculous lung is a sign of healing, broadly speaking it is healing. According to Hamman and others the use of tuberculin tends to increase the formation of fibroid tissue. Now, it is ancient therapeutic doctrine that our efforts should be directed to the strengthening of favorable changes already initiated in the body; therefore could we but pick out those patients who manifest a special tendency to fibrosis, they would probably be the ones most likely to profit by the use of tuberculin. Today this can be done with the greatest nicety by X-ray photographs of the chest. At all events, in my own work, when the X-ray plate shows abundant shadows of fibroid tissue, I am apt to advise tuberculin therapy, but in the contrary case do not do so.

L. P. Barbour, Rocky Ford: There are a hundred and one points in Dr. McConnell's paper that I should like to touch on but cannot. However, I want to review briefly the history of tuberculin. I have lived through it all; I have been a part of it; I have been using tuberculin since 1893. I had the first insight of it when people went wild because a man with Koch's great reputation had found a cure for consumption, and the indiscriminate use of it hurried a great many people into the grave, when a great many practitioners tried to cure old advanced cases by large doses of it. In the New York postgraduate school, I worked in Dr. Willy Meyer's clinic, and saw the treatment of cases of tuberculosis of the kidney which led me to give tuberculin. I saw patients apparently get well, and in 1893 I began the use of it. I speak of this on account of the opposition to its use by such men as Osler and Senn, who condemned it, but Osler and Senn never represented the whole mind of the medical world, any more than Koch did. I have never seen the day when I regretted using tuberculin in tuberculosis. I have seen some cases in which I regretted I did not use it, but my patients have been benefited by it as a whole. I published my first paper on tuberculin in the Therapeutic Gazette for August, 1894, and I said then "when we have sifted to the foundation, when we have learned properly to use it, we have in tuberculin the greatest agent yet in the treatment of tuberculosis". I still say that the cure of tuberculosis is not so serious a thing if you can ward off the outside depressing influences. I mean by outside depressing influences all forms of disease, especially chronic disease. We had a craze down in the Arkansas valley for the treatment of tuberculosis with mercury. I said regarding it, "you are relieving some of your tuberculous patients of the syphilitic incubus, and tuberculosis is responding by curing itself". The ordinary physical vitality of a man is enough to overcome the tuberculous germ in the majority of cases if you will relieve it of the incubus of other depressing influences. Take for instance appendicitis. I have seen patients who were on the way to recovery, doing well, come down because of a case of chronic appendicitis that was not cared for. There are a hundred and one influences or things to be borne in mind in this connection. Watch these patients and relieve them of the incubus of these things, and then tuberculin affords exactly what you want, a whip to the vitality of the patient to overcome this specific disease. It is a specific remedy. To be most effectual, tuberculin must be used in the earliest stages, and the greatest advance the profession can make in the treatment of tuberculosis is, if you will permit an Irishism, in being more alert to make an early diagnosis. We have made progress in twenty years, but there is plenty of room for further progress.

Herman Schwatt, Edgewater: I have not had an extensive experience with tuberculin. I have treated about fifty or sixty cases, and I have not as yet made up my mind whether it has proven of great value or of none at all. In our institution I have found a rather novel use for tuberculin. I find that some advanced cases, for which little can be done, and in which tuberculin is not indicated, come to me and say, "Doctor, can you not do something for me?" And in a few cases I have given them about one-tenth of a c. c. of a very dilute solution, once or twice a week, and it has exerted a remarkable psychic influence on some of them. I gave it to them for the psychic impression purely. I might just as well have given them sterile water or physiological salt solution. In some instances this has afforded a relief of the symptoms. Although it has been shown by some observers that the minutest doses of tuberculin exert a therapeutic effect, I do not believe that this is definitely proven. I think a good deal of the effect in alleviating symptoms and in the improvement of the patient is purely psychic.

Moses Collins, Denver: The question of the value of tuberculin treatment in tuberculosis at this time is not only a matter of grave debate in the minds of phthisio-therapeutists, but there are also at this time being compiled not only abroad but in America the results of tuberculin treatment by many men, so that we can come to some conclusion as to the real value of this method of treatment. Like all others connected with an institution for the tuberculous, I have been in a position to see what has been accomplished by the use of tuberculin, not only under my own observation and direction, but that also of a very large staff of visiting and consulting physicians who are familiar with the disease in all its aspects. The medical literature for the last year or two has been filled with reports of various men throughout the country giving their conclusions as to this method of treatment. There are men like Dr. Barnes, who is at the head of the State Sanatorium of Rhode Island, who have made an extensive study of the results obtained from tuberculin treatment in comparison with a large class of controls and have come to the conclusion that it is valueless in their experience. Other men like Dr. Pottenger, of Monrovia, have great faith in its efficacy.

As for myself, I am more than on the fence. I believe that I have used it in every kind of case in which it was recommended by others, and have also used my own judgment. I have used probably every form of tuberculin that has been made, and I am unable to give you any definite statement that I have obtained such results as to prove they were produced by the use of tuberculin. We have gradually eliminated, you may say, almost every case of pulmonary tuberculosis that we should like to use it in to get a result. We are practically unanimous that we must not use it in the fever cases, nor in advanced tuberculosis nor in the moderately advanced. We practically have come to the point of believing that if we wish to get results it must be used in the earliest cases of pulmonary tuberculosis and practically as an immunizing agent to prevent the earlier cases from becoming moderately advanced.

I want to refer to a method which, I believe, was first employed at the National Jewish Hospital as a sort of guide for results in the use of tuberculin. We treated any form of tuberculosis, and took X-ray pictures of all cases before the tuberculin was given. At the same time we took a number of other cases that were not put on tuberculin and had X-ray pictures taken of them. In a few words, the X-ray picture controls showed just as much improvement as some in which the tuberculin was used. The evidences, in some of these pictures, of progress in the disease, both in the case where the tuberculin treatment was employed, and where it was not, have shown us that we have no positive proof of its value.

J. F. McConnell (closing): This is, of course, a very vexed question. It is absolutely true that tuberculin acts best in the most favorable cases, and this is sometimes received with smiles, but why should it be so received? While tuberculin acts best in the most favorable cases, so do fresh air, good food, and rest and all other methods which we use in tuberculosis.

Last month there was an exceedingly interesting article in the London Lancet as to two hundred cases which had been taken by Lock and treated with tuberculin. In these cases, at the end of six months, there was no appreciable difference so far as he could determine between the cases treated with tuberculin and those treated without it. I do not think one can come to any conclusion from six months' exhibition of tuberculin. The only way tuberculin can be fully tested out is the disappearance of the bacilli from the sputum and by the working ability of the patient. If these patients can go a sufficient number of years without the presence of the tubercle bacillus in the sputum, we may determine something as to the good use or ill use of tuberculin. Unfortunately the matter is largely one of clinical impression. We have not any good, reliable, straight evidence that will stand the experimental and scientific searchlight.

I know nothing of the matter of fibrosis referred to by Dr. Sewall. It is an interesting point, however.

There is undoubtedly something in the psychic side in treating these cases with tuberculin, as has been said by Dr. Schwatt. We are enabled to get into closer relationship with the patient, see him more frequently and exert an influence in that way which may be of considerable value, but tuberculin even in minute doses does exert a therapeutic influence. Dr. Solis-Cohen, of Philadelphia, has used dilutions of one one-billionth of a milligram of tuberculin by mouth in tuberculous patients without any knowledge on their part that they were receiving it, and produced definite reactions. Even in the advanced cases treated by minute doses of tuberculin, there must be some therapeutic effect. The whole question is one of great interest, and I have a definite idea that tuberculin has been of great value to me. I have seen cases with involvement of the glands which resisted climatic and surgical treatment, but which disappeared under the use of tuberculin. I have seen patients with pulmonary tuberculosis who have not done well with pneumothorax treatment, but have responded very well to tuberculin, and one gets the impression that these patients are receiving some benefit, although it is difficult to prove it absolutely as yet. We must rely on the clinical data, yet I am not without hope of laboratory corroboration.

DIETARY STUDIES IN INSTITUTIONS FOR TUBERCULOUS PATIENTS IN THE STATE OF COLORADO.*

C. D. SPIVAK, M.D., DENVER.

Study No. 3. The Modern Woodmen of America Sanatorium, Woodmen, Colo.

I have the honor of presenting before this Society the third dietary study in institutions for the tuberculous in the state of Colorado. The first study was made at the National Swedish Sanatorium, Englewood, Colo., and was presented at the annual meeting held at Colorado Springs in 1910 (New York Medical Journal, January 28, 1911). The second study was made of the Sanatorium of the Jewish Consumptives' Relief Society, Edgewater, Colo., and was presented at the annual meeting held at Glenwood Springs in 1913. The present dietary study was made at the Modern Woodmen of America Sanatorium at Woodmen, Colo. The material comprises a brief description of the Sanatorium, the physical and clinical characteristics of the patients, tables of the kind and amount of nutrients and fuel value of each article of food, the number of calories consumed by each person per day and the menus of each day during the study period.

Description of the Sanatorium.

The Modern Woodmen Sanatorium is situated twelve miles northwest of Colorado Springs and just four miles from Glen Eyrie and the Garden of the Gods. The altitude is 7,000 feet above sea level, and the sanatorium is surrounded by mountains on the north, south and west, the plains stretching to the east. The patients are housed in commodious tents. The administration building, the receiving and hospital wards, the drug room, library, dining room, kitchen, pantry, bakery, laundry, electric plant, refrigerators, dairy, poultry yards, etc., are well located and substantially built, and are equipped with most modern appliances and with an eye for economy and efficiency. The staff and most of the employees are housed in separate cottages. The capacity of the sanatorium during the study period was 167 beds.

General Characteristics of the Patients.

Unlike the two previous studies, where 90 per cent of the inmates were foreigners, all the inmates with the exception of 11 were native Americans, all males. The state of Illinois was represented by 33 patients Missouri by 19 and Kansas by 11; and almost all the other states, including Colorado, had one or more representatives. The average age was 34.8, the youngest being 20 and the oldest 66 years. The average weight of 149 patients was 140.2, the highest being 190 and the lowest 103. The average height was 5 feet 9 1-3 inches, the highest being 5 feet 10¾ inches and lowest 5 feet ¾ inch. The average transverse diameter of the thorax, the tips of the calipers touching the axillary line on a level with the nipples, was 10½ inches, the lowest being 9 and the highest 12. The average anteroposterior diameter of the chest, the tips of the calipers touching respectively the sternum and the spine of the vertebra on a level with the nipples, was 7.6 inches, the lowest being 6 and the highest 9½. The color of the hair was brown in 66; dark, 50; light, 24; gray, 16; red, 11. The color of the eyes was blue, 80; brown, 67; gray, 20; 117 were married and had 317 children; 7 were widowers and 43 single. Of all occupations, the farmers led with 34; laborers, 7; machinists, 6; teachers, bookkeepers, carpenters, mail carriers, 5 each; barbers, blacksmiths, clerks, dentists, physicians, salesmen, teamsters, telegraphers, 3 each, and one or two of 66 other occupations. Tobacco was used by 103, alcoholic drinks by 79. The earning capacity of 21 inmates was $100 per month, of 14 over $100 per month (highest, $300). All the others were below $100 (lowest, $18).

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

Clinical Characteristics of the Patients.

A very complete clinical record of all the patients in the Sanatorium is kept, and all the details of the treatment, complications, etc., are noted. For the purpose of giving a composite picture of the patients I will limit myself to a statement of the main points. During the study week there were 143 ambulant and 24 bedridden cases; 149 suffered from tuberculosis of the lungs, the diagnosis was doubtful in 12; glandular tuberculosis, 1. Five were non-tuberculous. There were lung infarct, 1; lung abscess, 1; emphysema, 1; pleurisy, 2. The following complications were noted: Laryngitis (10), otitis media (6), rectal abscess (6), cardiac diseases (17), fistula (5), tuberculous wrist, intestinal tuberculosis, ulcer on tip of tongue (t. b?), nephritis, torticollis, pleurisy with effusion (3), asthma, Wassermann positive, Potts' disease of spine, tabes dorsalis and tuberculosis of sacro-iliac joint. The sputum was positive in 134, negative in 32. The blood pressure ranged between 84 and 180. The appetite was good in 107, fair in 50, poor in 10. The temperature was normal in 112 and febrile in 53, ranging between 95.4 and 104.6°. The pulse ranged between 98 and 120. The urine was negative in 127, albumin was present in 15; albumin and sugar, 6; sugar, 1. The bowels were regular in 105; constipated, 42; diarrhea in 1; slightly constipated, 17; constipation and diarrhea, 2. The nails were normal in 45 and clubbed or ridged in 122; 46 gave a history of tuberculosis in some member of their family; 31 had been operated on: for rectal abscess, 6; hemorrhoids, 4; appendicitis, 2. The teeth were good in 53, fair in 73, poor in 37, absent in 2. Pyorrhea was present in 17 cases. According to Turban's classification there were 17 cases in the first stage, 58 in the second stage and 74 in the third stage.

A certain number of afebrile patients received tuberculin treatment. In general, main reliance was placed upon fresh air, wholesome food and rest. Several cases of pneumothorax were then under observation.

The Employees.

The employees consist of a superintendent, 3 resident physicians, 8 nurses, 6 colony chambermaids, a chef and his assistants and other employees, making a total of 100. The superintendent and resident physicians take their meals at their respective homes.

Method of Making the Dietary Study.

The following method of procedure has been found to answer the purpose of a dietary study: In the afternoon of the day preceding the day of the study period all the patients are weighed, the temperature and pulse are taken and a note is made of the state of the appetite and bowels. The other data are copied from the records of the Sanatorium. After supper of the same day every article of food found on the premises — in store room, kitchen, cellar and ice box—is carefully weighed and recorded. This we call the initial inventory. All supplies purchased during the week are recorded as soon as they are received.

The following data are recorded for each meal: (a) the number of patients who take their meals in the dining room; (b) the number of patients who take their meals in bed; (c) the number of employees; (d) the number of guests; (e) menu of each meal of the day; (f) the state of the weather and (g) the amount of waste in the kitchen and leavings removed from the dining room and the tents after each meal.

The study is continued for seven days. In the afternoon of the seventh day all the patients are weighed for the second time. In the evening of the seventh day the food materials found on hand in the store room, kitchen, cellar and ice box are carefully weighed. This last step we call the final inventory. The calculation of the amount of food consumed during the study week is made by deducting the quantity of food found at the final inventory from the sum of the quantities of food found at the initial inventory, plus the quantity purchased during the week. The composition of the food materials and the fuel value of each article are then calculated from the different tables given in the various government publications issued by the United States Government, Office of Experiment Stations.

Details of the Dietary Study.

The study covered a period of seven days, beginning August 4 and ending August 10, 1913. The highest number of persons at a meal was 279 and the lowest 260. The average number of patients who took their meals in bed was 39. As the food is prepared in one kitchen, and as I was not in a position to make my study upon cooked foods, it was impossible to determine the amount of food consumed by the patients and by the employees separately. All my calculations were made from the amount of raw materials on the basis of the number of meals served during the study week. These meals were served as follows: To patients, 3,499 meals; to employees, 2,050; to guests, 121; total number of meals served, 5,670. The number of calories each day for each person was 4,104, out of which the protein calories were 738; fat calories, 1,857, and carbohydrate calories, 1,497; 2,667 calories were derived from animal food and 1,425 from vegetable food. The waste in the kitchen and at the table was carefully noted and compares favorably with the waste noted in other institutions for the tuberculous. The greatest amount and the costliest waste were of meat, where out of 2,610 pounds of various kinds of animal food (excluding milk and eggs) the table waste amounted to 508 pounds, or over 20 per cent. The cost of food materials for the week amounted to $955.35. The cost per meal per patient was 17½ cents, or 52½ cents per day.

It was very gratifying to notice that there was comparatively very little waste in bread, milk and butter. The dietary tables do not contain bread, cookies, cakes, etc., served during the study period, as they are included in the materials used (flour, sugar, etc.). The total amount baked was 818 pounds, of which the waste in kitchen and at table was 244 pounds.

The number of meals served each day was three. But few of the patients took lunches, consisting of milk and crackers. All the foods, cooked and otherwise, were of the same quality and quantity as used generally in public institutions and private homes in the United States.

At the end of the week the weighing of the patients showed that 69 patients gained 97½ pounds, the highest being 5¼ pounds; 37 patients lost 38 pounds, the highest being 4 pounds; 28 remained stationary, and in 33 the record of gain or loss was not recorded. The net gain in weight for the 134 whose weights were taken was 60½ pounds. As a matter of curiosity I paid special attention to the subject of aversion to certain articles of diet, and we recorded the following data: To onions, 10; cucumbers, 7; cabbage, 4; mutton, 3; lettuce, 2; bananas, 2; milk and eggs, pork, corn, meat, pineapple, spaghetti, fried eggs, tomatoes, celery, watermelon, veal, chicken and oatmeal, 1 each.

I abstain advisedly from drawing any conclusions or from entering into any discussions as to my findings. I reserve this privilege for a time when I shall have obtained additional data from other institutions and shall have repeated the dietary studies in the same institutions under other conditions and at another season of the year. I intend that this report shall serve merely as a stimulus to other sanatoria throughout the country to take up the study of diets in a systematic and scientific way, for the purpose of accumulating sufficient data to enable the dietitian to construct a scientific menu for tuberculous inmates.

In conclusion, I wish to express my sincere gratitude to Dr. J. A. Rutledge, medical director and superintendent of the Modern Woodmen of America Sanatorium, for the privilege he so graciously granted me of making the study; and to Drs. Charles O. Giese, H. C. Goodson and Jos. F. Wallace, the resident physicians, who took a deep interest in the study. I am especially indebted to Dr. Wallace for the painstaking records which he made. I must also mention the assistance rendered by the chef, without whose cooperation this study could not have been carried out satisfactorily.

DIETARY STUDY, MODERN WOODMEN OF AMERICA SANATORIUM, WOODMEN, COLORADO, DURING ONE WEEK BEGINNING AUGUST 4 AND ENDING AUGUST 10, 1913.

Kind.	Amt. Purchased, (lbs.)	Price.	Cost.	Amt. Used, (lbs.)	Fuel Value—Calories Prot.	Fat.	Carb.	Total.
ANIMAL FOOD:								
Beef—								
Fore quarter......	115	$0.11	$ 11.65	53	16,380	40,400	......	56,780
Hind quarter......	168	0.15	25.20	41	12,924	30,220	......	43,144
Loins	126	0.20	25.20	78	27,300	60,600	......	87,900
Calves' liver.......	23	0.20	4.60	17	5,460	12,120	......	17,580
Ribs	70	0.19	13.30	9	2,184	12,120	......	14,304
Whole beef........	779	0.13	101.34	656	214,760	294,920	......	509,680
Mutton	197	0.11½	22.66	162	54,600	121,200	......	175,800
Veal	225	0.15½	34.88	162	58,240	48,480	......	106,720
Pork—								
Bacon	55	0.27½	15.30	55	10,920	145,440	......	156,360
Ham	339	0.21½	72,79	329	93,912	443,592	......	537,504
Ham, minced	50	0.15	7.50	50	20,020	40,400	......	60,420
Loin	271	0.17	46.07	160	47,320	206,040	......	253,360
Lard	85	0.11⅜	9.44	85	......	340,850	......	340.850
Lard, compound	80	0.09⅜	7.50	80	......	32,000	......	32,000
Poultry—								
Chickens	252	0.20	50.40	72	25,480	48,480	......	73,960
Fish—								
Clams, canned	12	0.12½	1.50	9	910	2,020	......	2,930
Salmon, fresh	89½	0.16	15.12	74	29,120	36,360	......	65,480
Salmon, canned ...	21	0.14⅜	3.02	9	5,460	4,040	......	9,500
Eggs	535	0.22-0.26	92.64	517	125,944	214,928	......	340,872
Dairy Products—								
Butter	243	0.26½	64.40	205	......	68,680	......	68,680
Buttermilk	960	0.06 gal.	7.20	704	38,220	12,120	61,334	111,674
Cheese	31	0.21½	6.66	27	14,014	38,784	......	52,798
Milk	7,936	0.16	126.72	757	369,460	993,640	560,196	1,923,296
Total animal food.	...	....	....	...	1,172,628	3,247,434	621,530	5,041,592
VEGETABLE FOOD:								
Flour, cereals, etc.—								
Algrain	18	0.12	2.46	18	3,276	404	2,366	6,046
Corn Flakes	12	0.11¼	1.35	9	1,456	......	7,047	8,503
Cornmeal	7½	0.02 1-5	.16	7½	1,092	404	10,192	11,688
Cornstarch	3	0.05	.15	3	......	......	491	491
Cornstarch	22	0.06	1.32	22	......	......	34,580	34,580
Cream of Wheat...	12	0.12½	1.50	32½	6,734	808	41,860	49,402
Grape Nuts	5	0.11¼	.56	5	1,092	161	5,460	6,713
Macaroni	24	0.06	1.44	12	2,912	......	182	3,094
Oatmeal	60	0.03½	2.10	49	14,560	26,260	60,060	100,880
Rice	18	0.07	1.26	15	1,820	161	20,022	22,003
Rice, puffed	3	0.12½	.38	3	1,820	242	21,840	23,902
Wheat flour	500	2.45	12.25	500	70,980	20,200	695,240	786,420
Wheat, Ralston ...	6	0.12½	.75	8	1,456	......	1,820	3,276
Wheat, shredded..	3	0.10	.30	3	546	808	3,640	4,994
Wheat, puffed.....	2	0.11¾	.24	2	182	404	1,274	1,860
Crackers	40	0.07½	2.85	33	5,460	16,000	40,040	61,500
Sugar, etc.—								
Sugar	439	0.05½-.06¼	25.10	439	......	......	653,380	653,380
Molasses	38	0.90	3.89	38	14,560	......	47,320	61,880
Vegetables—								
Beets	60	0.04	2.40	35	910	1,212	5,460	7,582
Beans, navy	106	0.05½	5.82	91	22,560	2,176	61,312	86,048
Beans, string	35	0.06	2.10	20	7,280	2,420	5,060	14,760
Beans, canned	96	0.33	5.28	66	182	242	4,550	4,974
Beans, lima	13	0.11½	1.50	13	5,460	808	42,420	48,688
Beans, wax	30	0.06	1.80	15	5,460	404	16,016	21,880
Cabbage	112	0.05	5.60	46	1,274	404	4,550	6,228
Carrots	33	0.06½	2.14	23	364	......	3,740	4,104
Celery	7	0.06½	.45	5	......	......	182	182
Corn, canned	14	0.07½	1.03	4½	182	......	1,456	1,638

DIETARY STUDY, MODERN WOODMEN OF AMERICA SANATORIUM, WOODMEN, COLORADO, DURING ONE WEEK BEGINNING AUGUST 4 AND ENDING AUGUST 10, 1913.—(Continued.)

Kind.	Amt. Purchased, (lbs.)	Price.	Cost.	Amt. Used, (lbs.)	Fuel Value—Calories Prot.	Fat.	Carb.	Total.
Cucumber	30	0.04½	1.20	16⅓	182	......	9,200	9,382
Lettuce	26	0.04½	1.08	9½	182	......	364	546
Onions	51	0.04	2.04	9½	1,092	404	7,098	8,594
Peas	72	0.09 1-3	6.72	64	3,640	404	11,284	15,328
Potatoes	1,071	1.55	19.81	551	21,840	2,020	183,820	207,680
Rhubarb	70	0.03	2.13	52	546	1,212	1,965	3,723
Tomatoes, fresh...	20	0.06½	1.25	17	182	242	1,092	1,516
Tomatoes, canned..	24	0.05½	.99	18	364	1,212	1,274	2,850
Turnips	9½	0.08	.76	5½	1,274	404	8,008	9,686
Fruit—								
Apples, fresh	80	0.06¼	5.00	78	546	1,212	20,020	21,778
Apples, canned	54	0.26	2.34	51	182	404	50,414	51,000
Apricots	40½	0.10	4.05	27	546	......	6,734	7,280
Cherries, canned...	36	0.60½	3.90	28	546	......	10,738	11,284
Figs, dry	20	0.07½	1.50	28	1,092	1,616	20,930	23,638
Lemons	12	0.44	1.54	3	......	......	364	364
Oranges	6	0.40	.80	3	......	......	546	546
Peaches	58	0.06¼	3.62	46	5,700	......	7,826	13,526
Peaches, canned...	150	0.48	7.20	146	182	404	28,574	29,160
Pears, canned.....	42	0.60½	4.24	35½	1,820	4,040	11,460	17,320
Prunes	10	0.10	1.00	6	......	......	2,002	2,002
Watermelon	426	0.01½	6.42	110	728	808	13,286	14,822
Condiments, etc.—								
Baking powder....	5	0.11	.55	5	364	......	3,458	3,822
Catsup	16	0.42	.84	16	910	8,484	2,386	11,780
Cocoa	4½	0.35	1.58	4½	5,460	16,160	9,100	30,720
Chocolate	14	0.25	3.50	14	2,386	8,484	910	11,780
Coffee	77	0.28	21.56	77	......	......	......	......
Grape juice	1	...	.60	....	......	......	......	......
Horseradish	1	0.33	.33	1	364	40	1,830	2,234
Ice cream	10	0.90	9.00	10	......	......	......	......
Manitou Water....	12	...	.72	12	546	404	1,820	2,770
Olive oil	...	3.50	15.75	36	......	145,440	......	145,440
Pepper	2	0.22	.44	2	......	......	......	......
Pimento	1	0.17	.17	1	......	......	......	......
Pineapple, canned.	1	1.35	1.35	1	......	......	......	......
Salt	77	0.01	.77	77	......	......	......	......
Tea	7	0.44	3.08	7	......	......	......	......
Vinegar	2	0.23	.46	2	......	......	......	......
Total vegetable food.	...	...	...	..	222,292	266,912	2,208,063	2,697,267
Total food.......	...	...	$955.35	..	1,394,920	3,514,346	2,829,593	7,758,859
Calories consumed by each person per day	...	...	...	..	738	1,857	1,497	4,104

Total calories of animal food consumed by each person per day—2,667.
Total calories of vegetable food consumed by each person per day—1,425.
Total number of meals served during study period—5,670.
Cost of food per meal per person—$0.17.5.
Cost of food per day per person—$0.52.5.

Menu.

Served at the Modern Woodmen of America Sanatorium, Woodmen, Colo., during the week of the dietary study from August 4 to August 10, 1913:

MONDAY, AUGUST 4.

Weather, clear.

Breakfast—Oatmeal, corn flakes, grape nuts, ham, beef steak, eggs, wheat cakes, rhubarb sauce, carrots.

Dinner—Puree mongol, pickled beets, beef stew, roast leg of mutton, potatoes, green peas, watermelon, beef steak.

Supper—Beef steak, beef tenderloin, cabbage, lettuce, watermelon, potatoes, peaches, ginger cakes, blackberry sauce, cherries.

TUESDAY, AUGUST 5.

Weather, clear.

Breakfast—Oatmeal, cream of wheat, corn flakes, lamb chops, beef steak, bacon, eggs, popovers, figs in syrup, potatoes, rhubarb.

Dinner—Vegetable soup and French dressing, beef (prime ribs), ham (braised), potatoes, beans (wax), custard pudding.

Supper—Pork chops, potatoes (fried), cocoanut cake, pears, chicken, watermelon.

WEDNESDAY, AUGUST 6.

Weather, partly cloudy.

Breakfast—Corn flakes, oatmeal, liver and bacon, eggs, muffins (wheat), peaches (fresh), *beef steak, potatoes.*

Dinner—Tomato soup (canned), cucumbers, corn beef (boiled), cabbage, roast pork, apple sauce, potatoes (mashed), stewed corn (canned), cabinet pudding, *pork chops.*

Supper—Ham (boiled), beef (roast), potato salad, macaroni and cheese, cake, cherries, pears (canned), cantaloupe, peaches.

THURSDAY, AUGUST 7.

Weather, partly cloudy.

Breakfast—Oatmeal, corn flakes, corned beef (hash), eggs, ham, biscuits, maple syrup, rhubarb sauce, *beef steak, peaches* (fresh), *potatoes.*

Dinner—English beef broth, string beans (canned), short ribs (beef), roast veal with dressing, buttered beets, brown potatoes, cottage pudding, corn (canned).

Supper—Pork chops, potatoes (German), chocolate cake, peaches, blackberries (canned), beef (short ribs).

FRIDAY, AUGUST 8.

Weather, clear.

Breakfast—Ralston wheat, corn flakes, lamb chops, minced ham, scrambled eggs, wheat muffins, stewed prunes, *apricots (fresh), beef steak.*

Dinner — Clam chowder, beets, fried salmon, baked meat pie, beans (Golden Wax), potatoes, rice compôte with peaches.

Supper—Fried eggs, Boston baked beans, cabbage, cocoanut cake, pears, buttermilk, cherries (canned), baked meat pie, eggs.

SATURDAY, AUGUST 9.

Weather, partly cloudy.

Breakfast—Cream of wheat, puffed rice, corn flakes, beef, eggs, popovers, apples (fresh), ham, potatoes.

Dinner—Veal broth, lettuce salad, German pot roast (beef), braised ribs (beef), onions in cream, mashed potatoes, cream pudding, string bean salad, peas.

Supper—Veal cutlets, potatoes au gratin, chocolate cake, cherries, pears, tomatoes, cookies.

SUNDAY, AUGUST 10.

Weather, partly cloudy.

Breakfast—Oatmeal and cream, puffed wheat, minced ham, scrambled eggs, cinnamon rolls, stewed prunes, *beef steak, peaches (fresh).*

Dinner—Cream of tomatoes, combination salad, fried spring chicken, peas (green), potatoes in cream, strawberry sundae, sponge cakes and ginger snaps.

Supper—Cold meats, baked macaroni and cheese, salmon salad, cakes, pears, beef.

Bread and butter, milk, tea, coffee, cocoa and crackers were served with all meals. All articles in italics were special.

1421 Court Place.

TYPICAL AND ATYPICAL CASES OF ADDISON'S DISEASE.*

GEORGE H. CATTERMOLE, M.D., BOULDER.

My first case was that of a minister, 29 years old, who had come to Colorado nine years before on account of pulmonary tuberculosis. He received tuberculin treatment for about six months and was very much improved, so that he engaged in outdoor occupations. Finally, in the spring of 1909, he took up the work of a house painter, which kept him outside and constantly exposed to the sun, so that the first bronzing was thought to be tan.

A little later, however, the bronzing became more intense and was noticed over the portions of the body protected by the clothing. This was a typical case of Addison's disease, showing the bronzing, asthenia and digestive symptoms. With the bronzing there was a loss of strength and then failure of appetite, and diarrhea.

During the time from May 26th to August 14th these symptoms increased. The bronzing became intense and the heart was very weak. June 4th the blood pressure was 95 mm. of Hg. July 5th he had an attack of syncopy. He died on August 14th, having been sick since April. In the morning of the last day, he made some slight exertion and at once had an attack of syncopy, with discomfort about the heart. The heart sounds were very weak, with a large area of diffuse pulsation in the cardiac region.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

One of the most characteristic symptoms in the late stage of the disease is the sense of impending dissolution, which the patient feels on the slightest exertion. My second case had this sensation if she simply moved in bed. At this stage there is profound asthenia, in which these two cases progressed until death.

At autopsy in the first case, the left lung showed a healed cavity at the apex. There was no active trouble apparent in the lungs. The suprarenals showed enlargement and were both calcareous and caseous. They were examined by Dr. Whitman, who reported that they showed tubercles.

The second case was that of a married woman, 27 years old, who was sent to Boulder from Kansas City in August, 1913, because she was not getting along well at home. She had been coughing for four or five years and had a bad tuberculous family history. In 1912 she had grown worse, in spite of good care.

Examination of the chest showed only limited involvement in the apices. There was a pain in the right lumbar region which had existed for several months.

The temperature ranged from subnormal to 101°. On August 4, at 11 a. m., the pulse was 100 and very weak, and the temperature 99 1/5. On August 14 she was having obstinate constipation. Dr. Gilbert saw her with me and advised Pluto water, which gave temporary relief. She took almost no food. Obstinate constipation alternated with diarrhea, and at times there was persistent vomiting without apparent cause. She had attacks of syncopy in which it seemed that she might die; such attacks occurred on September 11 and 19.

The peculiarity in this case was the slight amount of discoloration in the skin. There was an anemic pallor with an uncertain fawn-color, but not a typical bronzing. At her home in Kansas City she had been kept in the sunshine and this could account for some tanning. We could not account for so much prostration, for such feeble circulation, and so much digestive disturbance as resulting from the pulmonary trouble. I saw her first on August 5th, and as time went on it seemed to me that her color was growing a little darker in spite of the fact that she was confined to the house. This, with the symptoms mentioned before, made me suspect Addison's disease on August 18th.

In support of the opinion that there was disease of the suprarenals even though the pigmentation was not marked, I found that Dieulafoy† says, "In one of my lectures I proposed the name 'atypical' ('fruste') for cases of Addison's disease in which pigmentation of the skin and mucosae was absent," and as evidence he describes three cases of this kind.

Among the remedies used in this case I tried both adrenalin and the gland substance without any apparent effect on the symptoms or blood pressure.

This patient died of progressive asthenia, although she seemed to be dying several times in attacks of syncopy. For several days she could not be moved in bed without a feeling of impending death.

Autopsy revealed calcareous degeneration in the right suprarenal and fibrous change in the left gland. There were enlarged lymphatic nodes along the aorta and in the mesentery. The specimen was examined histologically at the university laboratory and pronounced tuberculous.

The most interesting case in this group was that of Miss F., aged 14 years. Her mother is living and has some enlargement of the thyroid, eyes large and prominent, neurotic temperament. There are two brothers, aged 12 and 14 years, who are free from tuberculosis.

Her father died about two years ago, after two days of vomiting; cause uncertain. Autopsy showed hemorrhage in the region of the pancreas and stomach. He had been subject to vomiting attacks for several years, which usually followed nervous strain, such as work in court. He showed brown pigmentation of the face.

This girl was cared for at birth by an aunt, who had active pulmonary tuberculosis. After the death of her father, two years ago, the girl began having vomiting attacks, which would recur about once each month. She had never menstruated, and was thin, languid, pale and weak. On June 25, 1914, she was taken sick in school and had to be helped home. She continued vomiting and growing weaker until she died, on June 29, four days after being taken ill.

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†Dieulafoy—Text-Book of Medicine, p. 1202.

The family were practicing Christian Science and no physician was called until I saw her on June 28th, eleven hours before death. She had been sweating profusely during the early part of the night and was very weak, pulse 60, and rectal temperature 97°. She was conscious when aroused and took 1/100 grain of atropine by the mouth. In half an hour the sweating had stopped and her pulse was stronger.

I was called six hours later and found her in a stupor, pulse 120, rectal temperature 98.4°. There was some rigidity of the neck and arms, Kernig's sign and Babinsky reflex present, also tache cérébrale, and forcible vomiting.

Some of the spinal fluid was taken by lumbar puncture but showed nothing abnormal. The urine was acid, specific gravity 1025, no sugar, albumin, nor bile. As she had eaten some clam broth and ham a few days before, it was necessary to exclude food poisoning. The symptoms might also be due to arsenical poisoning.

At autopsy, there was no evidence of peritonitis; very little fluid in the stomach; one or two small submucous hemorrhagic spots in the gastric mucosa. The pancreas and liver were normal.

Both suprarenal glands were large and filled with gray, fibrous, caseous, and calcareous masses. The lungs were normal except for a small pleuritic adhesion on the right side. There were many enlarged and calcified bronchial glands, which evidently represented the primary seat of tuberculous infection.

Here is the case of a child, born in Colorado, and infected with tuberculosis probably in the first year of life, who lived to the age of 14 years without showing recognizable symptoms of the disease, but who died from the effects of tuberculosis in the suprarenal glands.

Typical cases of Addison's disease are easy to diagnose, but those with only slight pigmentation are difficult and may only be proved by autopsy.

The lesson which we may learn from these cases is that with very marked asthenia, the trouble may be in the suprarenals. The other symptoms are low blood pressure, pain and gastro-intestinal troubles.

In cases of tuberculosis where the prostration is greater than can be accounted for by the trouble in the lung, we should remember the possibility of the chromaffine system being diseased and possibly try the use of the suprarenal gland or its products as a therapeutic test and a remedial agent.

DISCUSSION.

George A. Moleen, Denver: Ever since the subject of Addison's disease was brought out by Addison and elaborated upon by Rolleston, it has been a matter of considerable question as to how much the suprarenal itself has to do with the disease known by Addison's name. Only in the last few years in the German literature there have been a number of cases analyzed which presented symptoms of asthenia, lowered blood pressure, gastro-intestinal symptoms or disturbances, and pigmentation more or less of the skin, in which the adrenals were found intact. Degenerations were found in the nerve fibres leading from the suprarenal plexus and also in the splanchnics. The similarity of the syndrome of myasthenia gravis, of some of the symptoms associated with goiter, and of those which we know as belonging to Addison's disease, must have impressed a great many. In myasthenia gravis we find marked weakness without atrophy; with moderate pigmentation of the skin and low blood pressure. In most cases of myasthenia gravis lesions of the thymus gland have been found. From one of the cases recently reported, one is constrained to view the syndrome as originating with the thyroid. I treated a case in a woman, 45 years of age, who presented a tremor as the principal symptom, in connection with tachycardia. The tremor was fine, and said to have existed since childhood. It could not be stopped by the ordinary anti-thyroid preparations and by rest, and the usual bromid treatment, but there was no enlargement of the thyroid gland. In view of some of the reports in the literature on the successful use of suprarenal substance, this was tried and a considerable amelioration of the symptoms occurred. In fact, recovery was supposed to have taken place. Eight months ago the trouble recurred with profound tremor, marked asthenia, and the occurrence of severe gastro-intestinal symptoms—persistent vomiting and persistent dysentery—with signs of impending collapse. In this case all remedies had failed. The stools were examined without showing any abnormal constituents. The blood was examined and showed about 3,500,000 reds, with 21,000 leucocytes, and absence of other evidences of inflammatory lesions. The case appeared moribund. That she had done well previously on suprarenal substance was recalled, and its use was again instituted. Twenty-four hours after the first administration of this substance the patient improved again. He gained in weight, and is apparently quite well today; the tachycardia having subsided to ninety or a hundred.

Regarding the gastrointestinal symptoms, it is interesting to follow Pemberton, who, in the Archives of Internal Medicine, has shown that the injection of suprarenal substance increases the flow of pancreatic juice, consequently the stoppage of suprarenal substance would evidently diminish the amount of pancreatic juice. This in a measure, may account for the gastrointestinal symptoms which we find. The relation between the sympathetic nervous system and the chain of internal secretory glands I think is most important, and the interrelation of the secretions with one another is a thing which must be investigated before we can say Addison's syndrome is confined to the suprarenal gland itself.

DEATH FROM HEMORRHAGE FOLLOWING PERITONSILLAR ABSCESS.*

Author's Method of Opening Peritonsillar Abscess.

THOS. E. CARMODY, M.D., D.D.Sc., D.D.S., and WM. C. FINNOFF, M.D., DENVER.

Much has been written about the effect of acute follicular tonsillitis upon the general health, both immediate and remote, but very little has appeared relating to circumscribed collections following the diffuse form, either as tonsillar or peritonsillar abscesses.

As for those situated in the tonsil or intratonsillar, they are of little interest as compared with peritonsillar affections, and are usually not discovered until after operation for tonsillectomy has been performed, although they are at times found during operation.

Peritonsillar abscesses may be located in the supratonsillar fossa, the anterior fossa or posterior fossa.

The supratonsillar fossa is located directly above the tonsil between the palatal attachments of the palato-pharyngeus and palato-glossus muscles, extending into the palate. It is most frequently found as a space above the tonsil covered medially by the plica. Very often however the tonsil extends into this space, entirely obliterating it, and in these cases it simulates the anterior and posterior fossae.

The anterior and posterior fossae are not spaces, but are formed by the anterior plica and the plica triangularis anterior (at times extending around the lower lobe), and by the posterior pillar, and a retrotonsillar plica if present, posteriorly. It may be seen from this that in those cases where only a few cryptic openings are seen, while the remainder of the tonsil is covered by pillars and plicae, we may find a collection of pus in any direction from the tonsil, except medially.

The faucial tonsil is found on the lateral wall of the pharynx, internal to the superior constrictor, posterior and internal to the angle of the mandible. It is bounded anteriorly by the palato-glossus muscle and the covering mucous membrane, posteriorly by the palato-pharyngeus and mucous membrane, and above by the junction of the two preceding structures in the palate; while below it is limited by the base of the tongue, and becomes continuous with the lingual tonsil.

Its location in such close proximity to the large vessels of the neck must be considered in operating in this region. The internal carotid artery lies slightly posterior and external to the tonsil, with only the superior constrictor muscle between. Many who have experienced bleeding following tonsillectomy will have noticed during the process of clamping and tying arteries that the fibers of the constrictor were easily separated, and that they were able to feel the internal carotid.

Chassaignac calls attention to the fact that after middle life the artery describes a curve at this level with its convexity inward.

While the hemorrhage following tonsillectomy comes from the branches of the external carotid, usually the ascending pharyngeal or descending palatine, and less frequently the tonsillar, a branch of the lingual or direct from the external carotid, it is not from this source that we need to fear the complications with which this paper deals.

A large number of cases, mostly fatal, have been reported but our attention may be again challenged without harm.

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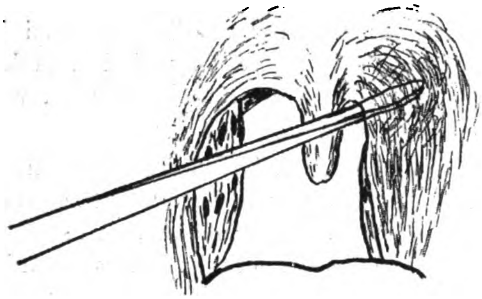
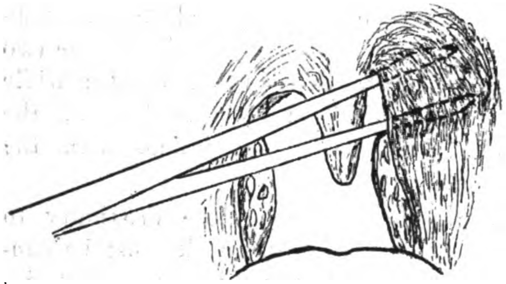
*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

A case was reported by Newcomb in 1908, with a complete review of the literature up to date, and we can not do better than quote his statistics and briefly cite his case.

Group 1.

Spontaneous opening of the abscess; immediate hemorrhage.





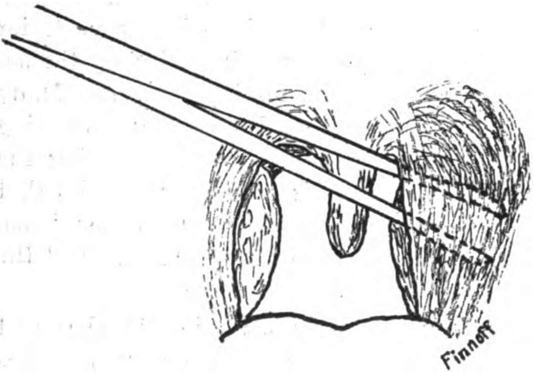


Fig. 1.
Swollen tonsil with pillar adherent and inflamed showing introduction of forceps for opening abscess.
Fig. 2.
Opening forceps.
Fig. 3.
Forceps dipping into anterior fossa.

A. Fatal cases.

Caytan; male, 38 years, no operation, ulceration of the internal carotid.

Griselle; no particulars given; no operation; ulceration of the internal carotid.

Lefort; no particulars given; no operation; bleeding believed to have come from the internal carotid.

Mery; no particulars, no operation, abscess led to ulceration of the internal carotid.

Macgregor; male, 20 years old, no operation; tumor appeared in right side of neck, running down to the mastoid process, autopsy revealed a circumtonsillar abscess, communicating with the internal carotid by an opening the size of a small bougie.

Monod; male, 38 years, no operation, probable ulceration of internal carotid.

Norton; female, 4 years, no operation, incision of abscess was refused by parents. Autopsy revealed ulceration of internal carotid.

B. Recoveries.

Dunn; child 3½ years, bleeding immediate and recurred 24 hours later, cervical hematoma; ligation of common carotid, after which tumor gradually decreased in size; bleeding was seen to come from the posterior faucial pillar.

Luke; no particulars, bleeding immediate and recurrent, ligation of common (?) carotid.

Messiter; male, 24 years, immediate bleeding, profuse and recurrent; initial hemorrhage on 4th day of a quinsy and recurrence on the 19th day. Ligation of common carotid.

Pircher; male, 22 years, bleeding immediate and recurrent, ligation of common carotid. Definite statement that no bad effects followed the operation.

Summary of group 1: Eleven cases, seven fatalities and four recoveries.

Group 2.

Spontaneous Opening of the Abscess, Secondary Hemorrhage.

A. Fatal cases.

Bourguet; male, 20 years, bleeding recurrent, no operation.

Brewer; male, 25 years, small immediate and later recurrent hemorrhage, no operation; an effort was made to secure pressure against the posterior surface of the soft palate by means of a small roll of gauze to which were attached tapes coming out through the nares. Arrest of hemorrhage for a while, but later fatal recurrence; supposed rupture of a small abscess on the posterior surface of the soft palate.

Clayton; no particulars, no operation, ulceration of internal carotid.

Hall; male, 26 years; bleeding came on two hours after the abscess burst. Fatality probably due to rupture of a carotid aneurism, as a few minutes previously he had complained of a "balloon-like" feeling in his throat; no operation.

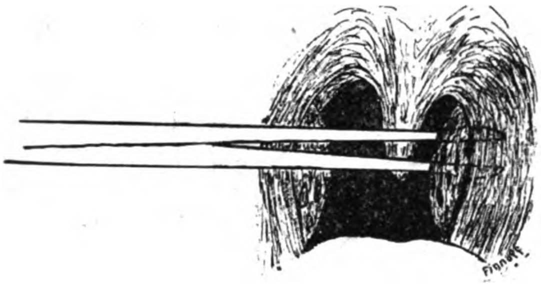


Fig. 4.
Forceps being opened in posterior fossa.

Mueller; male, 44 years, recurrent pus and blood, no operation; autopsy showed facial artery thinned and ulcerated; cavity full of pus at bottom of left tonsil.

Reeves; few particulars, hemorrhage same day as opening of abscess and recurrent. Operation proposed but refused.

Vergely; male, 34 years, blood and sphacelus on bursting of abscess, and again a few hours later; operation refused; autopsy showed in retro-tonsillar space a cavity the size of a pigeon's egg, full of clots and sphacelus; internal carotid trunk cleanly severed about two inches from bifurcation of the common trunk.

Walker; few particulars, hemorrhage forty-eight hours after abscess burst; tumor formed along right side thyroid cartilage; communicating with abscess; no operation.

B. Recoveries.

Ehrmann, male; 22 years, hemorrhage on the eighth-ninth day, ligature common carotid; supposed lesion of internal carotid.

Moizard; male, 49 years, large hemorrhage in twenty-four hours causing syncope, which checked bleeding; clot seen in situ in vessel wall; no operation; ergotin hypodermically, rest and carotid compression.

Marotte; male, 30 years, hemorrhage in forty-eight hours; no operation; large doses of quinine given for some days.

Postempski; male, adult, hemorrhage twenty-four hours after bursting of abscess; ligation of common carotid artery; suspected lesion of internal carotid.

Stoupy; male, 22 years, hemorrhage on eighth day, ligature of external carotid; massive infiltration had appeared in region of sub-maxillary gland; incision for ligature encroached on this area and gave exit to considerable clotted blood, and in spite of ligature external bleeding continued for a while, but patient eventually recovered.

Veillard; male, 26 years; recurrent hemorrhage some hours after abscess burst; no operation, ice and rest.

Weinlechner; male, 37 years, hemorrhage two days after abscess opened; ligature of common carotid, with immediate recovery, but evidences of disturbed muscular power appeared on the opposite side of the body; in six weeks this had nearly disappeared; later death from apoplexy.

Summary of group 2: Fifteen cases, eight fatalities and seven recoveries.

Group 3.

Abscess Opened by Incision; Immediate Hemorrhage.

A. Fatal Cases.

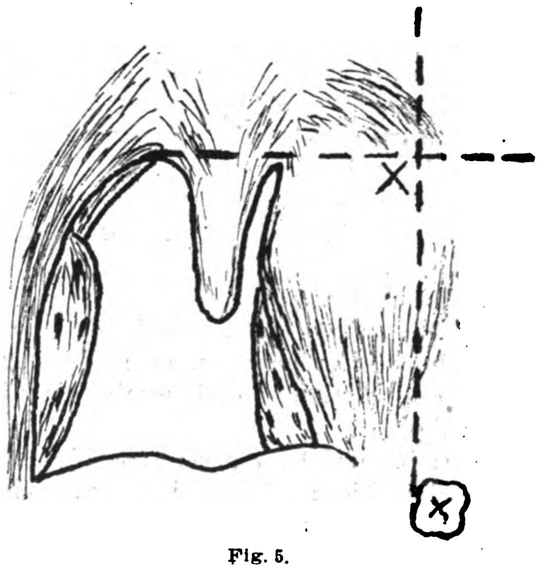


Fig. 5.
After Thompson, X showing point at which forceps should be pushed through pillar.

Duke; male, 32 years; pulsatile tumor had appeared in tonsillar region; ligature of common carotid immediately stopping pulsation; ligature came away on the sixteenth day, and on the twenty-first day the man appeared perfectly well and was dismissed; one week later he went on a debauch and had a fatal hemorrhage.

Lebram: (second case), male 2 years, no operation, bleeding also from ear.

Fehleisen; male, 34 years; after incision clots were turned out of abscess cavity, but threatening dyspnea necessitated tracheotomy during which patient died; swelling had appeared at angle of jaw following angina with fluctuation over it; internal structures were pressed toward middle line; no bruit or pulsation in pharynx; carotid vessels were found lying in purulent foci and perforated at bifurcation.

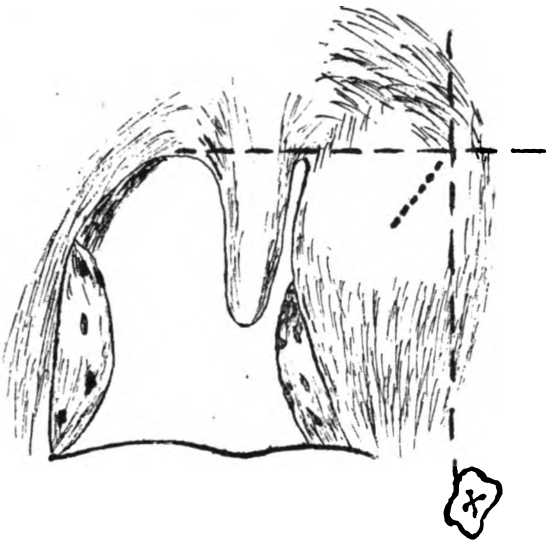


Fig. 6.
Same as Fig. 5 only dotted line shows incision into abscess.

Liston; incomplete report; ligation of common carotid which did not control hemorrhage.

B. Recoveries.

Lebram; (first case), female, 9 years, hemorrhage from pharynx, nose and ear; ligature of common carotid; hemiplegia followed ligature.

Long; incomplete report; free bleeding followed incision; later, patient was found choking, and was resuscitated with great difficulty; no operation.

McBarron; (case reported in this paper), male, 55 years, hemorrhage immediate and recurrent; arterio-sclerosis; ligature common carotid.

Summary of group 3: Seven cases; four fatalities, three recoveries.

Group 4.

Abscess Opened by Incision; Secondary Hemorrhage.

A. Fatal Cases.

Pitts; male, 39 years; hemorrhage twenty-four hours after incision and recurrent; ligation common carotid; autopsy showed left tonsil replaced by cavity and the internal face of the internal carotid bathed in pus with a perforation the size of the tip of the little finger.

Watson; incomplete report; hemorrhage forty-eight hours after incision; ulceration of lingual artery found.

(In this category it seems proper to include two cases reported by Kaplan, although they did not present the usual clinical features of an ordinary quinsy. The incisions in these cases were made externally, but both cases were reported as hemorrhage, due to circumtonsillar abscess. The surgical conditions, and especially the problems they offered, make the classification here followed logical. For a summarized history of the cases taken from their original source of publication in one of the Russian journals, I am under obligation to Dr. S. M. Jacobs of New York.

Kaplan; (first case), male 22 years; a fluctuating swelling the size of an egg, appeared at the angle of the jaw externally, tonsil red and inflamed; incision revealed a deep pus cavity leading toward throat; wound did well for thirteen days and then bled most profusely; ligature of common carotid; paralysis of arm and leg of oppo-

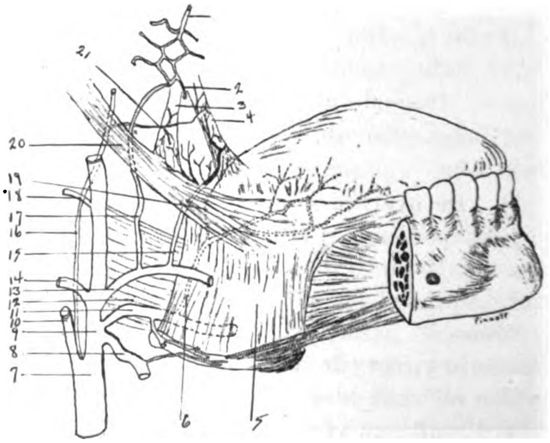


Fig. 7.
From Deaver showing the relation of abscess to tongue and tonsil. 1. Descending palatine A. 2. Anterior branch of descending palatine A. 3. Palato-pharyngeus M. 4. Palato-glossus M. 5. Hyoglossus M. 6. Dorsalis linguæ A. 7. Common carotid A. 8. Superior thyroid A. 10. Internal carotid A. 11. Lingual A. 12. Middle constrictor M. 13. Facial A. 14. Occipital A. 15. Tonsillar br. of facial A. 16. Ascending pharyngeal A. 17. Ascending palatine br. of facial A. 18. Posterior auricular A. 19. Tonsillar br. of dorsalis linguæ A. 20. Stylo-glossus M. 21. Palatine br. of ascending pharyngeal A.

site side; ten days later paralysis much better, but patient lost consciousness and died with slight convulsion of paralyzed side; hemorrhagic pleurisy.

Kaplan; (second case), male, 19 years; tumor at angle of jaw; incised and pus found burrowing toward pharyngeal wall; same day cyanosis, choking, tracheotomy with temporary improvement; forty-eight hours later, sudden hemorrhage from wound, nose and mouth; ligature of common carotid immediately checked it; patient regained consciousness, but soon became comatose and died; perforation found in internal carotid.

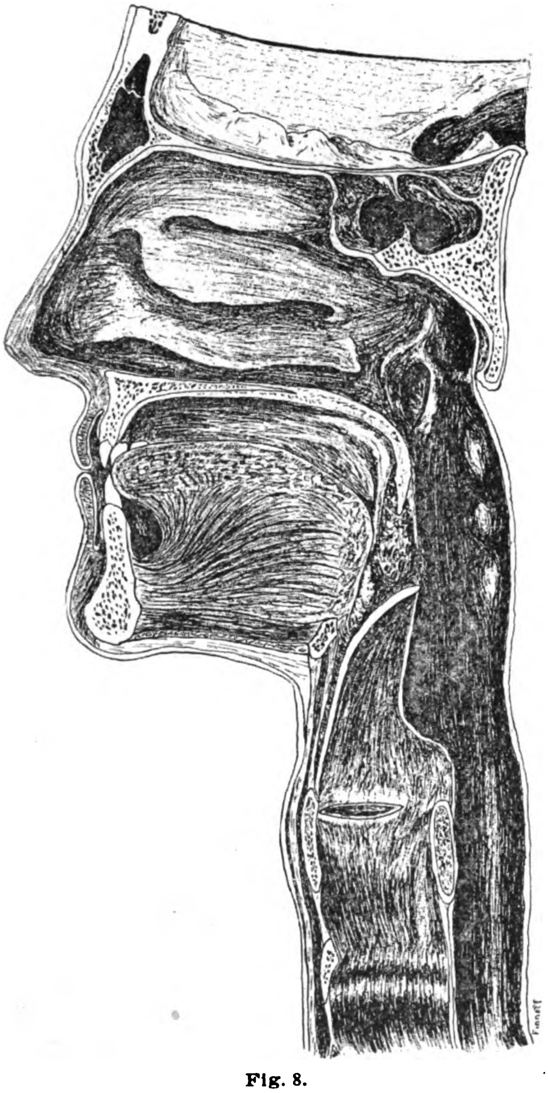


Fig. 8.
From Deaver showing relation of larynx to tongue and tonsil.

B. Recoveries.

Borbone; incomplete report; hemorrhage the day following incision.

Chappell; male, 27 years, hemorrhage fourth day and recurrent, controlled by packing; no operation.

Gleitsmann; male, 24 years, hemorrhage eighth day and recurrent; styptic packing controlled; no operation.

Schmiegelow; male, 30 years, hemorrhage fourth day; ice, rest and morphine controlled probable lesion of a twig of the tonsillar or ascending pharyngeal artery.

Summary of Group 4: Eight cases, four fatalities and four recoveries.

As far as reports show all of the cases in the foregoing groups were quinsies. Additional cases have been reported which may be grouped as follows:

Group 5.

Hemorrhage Following Retro-Pharyngeal Abscess.

Carmichel; male, 5 weeks, immediate hemorrhage following the opening of the abscess; no operation, death; abscess found to connect with posterior tonsillar cavity; bleeding from a branch of the external carotid.

Chassaignac; incomplete report; immediate hemorrhage following incision; ligation of common carotid, recovery; probably false aneurism, due to carotid erosion.

Clutton; male, 28 years, spontaneous opening of abscess; hemorrhage immediate and recurrent; ligation of common carotid, and of its external and internal branches; recovery; blood thought to have come from the internal jugular vein; abscess appeared to focus above the right tonsil.

Erichsen; incomplete report; phlegmon in pharynx discharged pure pus; on seventh day fatal bleeding from abscess cavity; autopsy revealed abscess bordering wall of internal carotid, which had been perforated.

Franklin; male, 8 years, spontaneous opening of abscess, no operation, recovery; pulsating swelling was evident on the outer side of neck, evidences of general sepsis, later subsidence of external swelling; aphonia not clearing up for several months, long and tedious convalescence; one year later slight weakness of arm and pes equinovarus; probable embolus of middle cerebral artery, a terminal branch of the internal carotid.

Summary of Group 5: Five cases, two fatalities and three recoveries.

Group 6.

Hemorrhage in Connection with Scarlatinal Suppuration.

Immerman; male, 17 years, spontaneous opening of abscess, sudden buccal hemorrhage, no operation, death; deep tonsillar abscess found which had perforated carotid, much blood in bronchi.

Pepper; male, 30 years, spontaneous opening, recurrent hemorrhage; ligation common carotid artery, recovery; blood regarded as having come from internal carotid; left vocal cord paralyzed before operation.

Mahomed, in discussing Pepper's paper, reported six cases without particulars, except that some were fatal. From lack of data these cases are not included in this summary.

Lyot and Petit; female, 19 years, elastic swelling suddenly appeared in left mastoid region with systolic bruit; left tonsil pushed toward median line and compressible; puncture externally withdrew blood; spontaneous subsidence; no internal bleeding, recovery.

Summary of Group 6: Three cases, one fatality, two recoveries.

Group 7.

Hemorrhages in Connection with Gangrenous Tonsillitis.

Craigin; male, 45 years, spontaneous opening and immediate hemorrhage; no operation, death; right tonsillar space and posterior pharyngeal wall showed partly detached slough.

Terganowan; male, 20 years, spontaneous opening, two or three small arteries, possibly twigs of ascending pharyngeal; autopsy showed complete destruction of parotid gland and gangrenous softening of entire circumference of external carotid with fistulous opening into throat.

Summary of Group 7: Two cases, both fatal.

Two other cases have been reported under the heading of hemorrhage from circumtonsillar abscess, but they do not seem to the writer to belong to this category.

Wulf; female, 6 years, suspected aneurism of internal carotid; pulsation stopped by compression of the external trunk; ligation of common trunk, with cessation of pulsation and bruit in pharynx; recovery; sac filled up with blood clot, but later suppurated and puncture then gave fluid blood; eventual recovery.

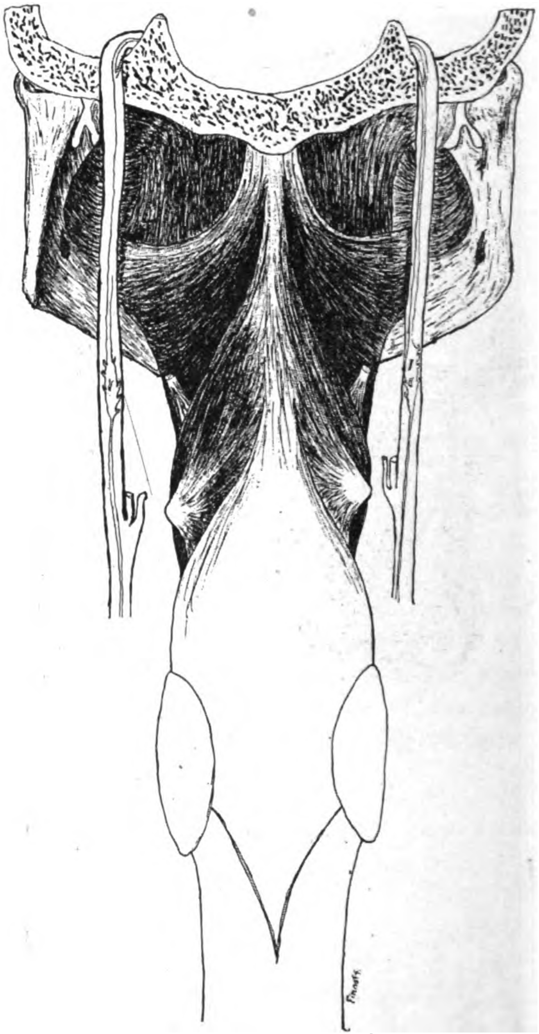


Fig. 9.

Drawing from Deaver showing relation of constrictor muscles to internal carotid artery.

Savory; apparently a case of abscess in the neck involving internal structures, with external hemorrhage; no operation, death.

Excluding the last two cases, we have then fifty-one well authenticated cases of hemorrhage dependent on suppuration in connection with pharyngeal structures. Of this number twenty-three recovered and twenty-eight died, a mortality rate of 54.8 per cent. These figures show the gravity of this complication. Sex is stated in thirty-nine, of which number thirty-five were males and four females. This fact is of no special significance, as circumtonsillar and other pharyngeal abscesses are more common in males. Age is given in thirty-seven cases; seven occurred in the first decade of life, five in the second, eighteen in the third, six in the fourth and one in the fifth. The maximum and minimum ages were 55 years and 5 weeks, respectively.

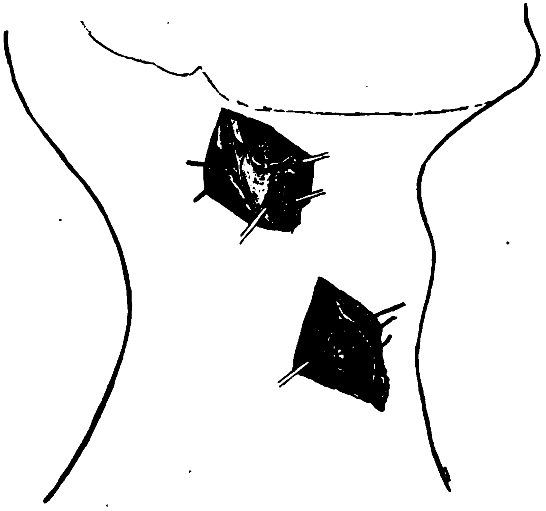


Fig. 10.
Drawing from Deaver showing points where artery should be ligated. Superior is best point for ligating external carotid; inferior best for common carotid.

Operations were performed as follows: ligation of the common carotid sixteen times, with eleven recoveries and five deaths; of the external carotid once with recovery and of the common trunk, with both branches, once with recovery.

Besides these cases a number have been reported.

In 1910, Coffin reported the case of a child 21 months, which ended fatally, and in which apparently there was a complicating otitis and later hemorrhage through the Eustachian tube as well as from the throat.

Leshner, in discussion of Coffin's case, reports the case of a young colored man in which bleeding was profuse, but does not state the eventual outcome.

Case report. G. T., male, age 3 years. The child was a mouth breather, and had had several attacks of tonsillitis and sore throat.

When first seen the child was in the third day of an attack of acute follicular tonsillitis, with a temperature of 102.2° F., pulse 120 and respiration 26. Lungs and heart, negative.

The throat appearance was that of acute follicular tonsillar inflammation, with moderate enlargement of both anterior and posterior cervical and lymphatic glands. Diphtheria culture negative.

To the inflamed tonsils an application of the tincture of iodine was made, internally aspirin, salophen and phenacetin were administered, and calomel was given. The parents were instructed to apply cold applications to the throat and to keep the child in bed.

The next day the temperature and pulse rate had diminished, and the child felt somewhat better, but the appearance of the throat was much the same as the previous day.

On the third day the temperature was 99°, the pulse 106°, and the throat looked better. From this time there was gradual subsidence of symptoms, and on the sixth day the acute inflammatory condition had subsided and the case was dismissed, after advising removal of the tonsils and adenoids at the earliest convenience.

On the ninth day after first seeing this patient, the mother was alarmed by the presence of a profuse hemorrhage from the mouth and throat, precipitated by the child's drinking some milk. The mother stated that the child had lost about a teacupful of blood. The child was not seen until the hemorrhage had ceased, at which time he was very weak, the lips were paler than usual, and the pulse was very soft and rapid. Examination of the throat revealed a large opening in the upper portion of the anterior pillar, with a small amount of yellow pus draining from it, but no blood.

In one hour the pulse became slower and of better quality, and the color in the lips had begun to return. No further bleeding took place, and the parents were advised to keep the child at absolute rest, without water or food by mouth, and if further hemorrhage took place to inject hydrogen peroxid into the mouth and throat and to call at once.

Eight hours later the child was again seen, and was decidedly better in every respect; the pulse was full and the color had greatly improved. The opening was still draining pus freely.

About eighteen hours after the first hemorrhage, the child spat a small amount of blood, but no help was called, and little was thought of it by the parents.

Twenty-two hours after the first hemorrhage, the third and fatal one took place. The father, contrary to orders, gave the child a drink of milk, which was followed by a coughing spell and bleeding, which resulted in death.

As for other causes of death from peritonsillar abscess, such as edema of the glottis, septicemia, suffocation, etc., we are unable to include discussion of them in this paper.

Treatment. This includes prevention by carefully watching all cases after follicular tonsillitis, and early opening when pus is found to be present.

As for methods of opening, there are many, the oldest and most frequently used instrument being the knife, used bare or with part of the blade wrapped in cotton. Forceps may be used either after the knife incision, or as advised by St. Clair Thompson, according to whose method the closed forceps is introduced at the intersection of an imaginary vertical line drawn from the lower edge of the anterior pillar with one passing through the base of the uvula; the blades of the forceps being then separated to give vent to the pus. The practice followed by the author during the past eight years resembles the method lately described by Killian and Hays. This method, fully illustrated in figures 1 to 4, gives drainage through the normal channel and the one through which the abscess usuall discharges spontaneously if allowed to rupture. If the abscess is in the supratonsillar fossa as occurs in 95 per cent of these cases, drainage is much better than at the usual point of drainage when the knife is used.

This operation is performed preferably with angular forceps, as shown in Figs. 1, 2 and 3, but may be accomplished with a straight forceps. The instrument is introduced from the opposite side of the mouth with the point extending between the anterior and posterior pillars at their junction and between the plica and the tonsil and forced upward, outward and backward, thus entering the supratonsillar fossa where it will most likely encounter pus. If the forceps is then opened and withdrawn the pus will be seen to follow between the blades and will continue to discharge through this channel. We may, however, fail to find pus in the supratonsillar fossa, and in this case the forceps should not be withdrawn, but made to sweep down into the posterior fossa, and failing to find it there, into the anterior fossa, but this latter is seldom necessary.

The advantages of this method are:

1. The opening is made at the actual point for drainage, i. e., at the most dependent portion of the abscess.
2. The opening can be made wide enough so as not to close easily.
3. No muscle fiber or mucous membrane is cut.
4. A dull instrument is used and there is no danger of wounding a vessel.

The objections to the knife are that you may wound vessels, or cut a large amount of muscle tissue, so that the resulting scar will interfere with the action of the palate or give insufficient drainage.

The forceps as used by Thompson is not open to the same objection as the knife; only the best site for drainage is not the middle or upper part of the abscess.

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DISCUSSION.

W. C. Bane, Denver: I have followed St. Clair Thompson's method for the opening of peritonsillar abscess. You will remember that his description of the classical location was the junction of a vertical line drawn from the anterior pillar with a horizontal line from the base of the uvula: where these two lines meet, as a rule, the abscess will be found. By quickly thrusting the forceps through the tissue for about three-quarters of an inch at the above point, and then opening the blades as the forceps are withdrawn, the pus will flow into the mouth.

I am very much interested in Dr. Carmody's report as to hemorrhage following abscess. I remember Dr. Hall speaking of a case of peritonsillar abscess that came to his office. The patient went out on to the street, when rupture of the abscess occurred and the man died in a few minutes from hemorrhage, ulceration of a vessel having taken place.

F. Lassen, Pueblo: The line from the base of the uvula should be extended one centimeter to the outside. About one centimeter to the outside of the intersection is the point where we usually find the pus, not at the intersection.

T. E. Carmody (closing): We are not speaking of tonsillar abscess, but of peritonsillar abscess and most such abscesses are in the supratonsillar fossa. I wish to make the point that we do not want to enter a knife, because if the patient goes out and bleeds to death, or bleeds to death without going out, they say that we cut an artery, although this is not the case, and although in fact, the cases in which post-mortems have been held show that the artery had ulcerated through the wall. If we enter with dull forceps, we run no chance of puncturing an artery.

W. C. Finnoff: This case is of interest to me, because the hemorrhage followed a spontaneous rupture and because the peritonsillar abscess developed I think six days after the acute symptoms had subsided. The patient's family were in poor circumstances and I did not make calls after the acute symptoms had subsided. I think in acute tonsillitis one should look after the patient until all symptoms have cleared up.

SUBPERIOSTEAL ABSCESS OF THE MAXILLARY SINUS.*

A. R. SOLENBERGER, M.D., COLORADO SPRINGS.

I intend briefly to consider only one segment in the pathological circle known conventionally as empyema of the maxillary sinus, namely, subperiosteal abscess of the floor of the sinus.

I do this not only because I believe that this condition is an entity, but because, if we can get a more definite idea of the nature of the abscess—especially as a causative force—I think it will be seen that most efficient prophylactic work can be done at this stage of empyema of the antrum, and it will perhaps also appear why we, as operators, sometimes fail to secure the desired results.

By subperiosteal abscess of the floor of the sinus, of course, I mean the presence of pus under the lining of the floor, which if not evacuated per alveolum, escapes spontaneously sooner or later into the mouth or into the sinus.

Etiologically, and of course prophylactically, the dentist must stand sponsor for this condition, and while we are studying this condition the question should arise whether we as rhinologists have been sufficiently insistent on the dentist's responsibility in prophylaxis.

First, then, in regard to the symptoms, development and progress:

The symptoms are most frequently clandestine and inconstant. The infection often steals from the alveolus through the antral floor. There is little or no pain after the inflammation in the alveolus has subsided. This is due to great variation in thickness and density of the antral floor.

The antral floor is often very thin, and if thick it is often very cancellous, and not infrequently the tooth fangs are found actually to project into the sinus.

On the nasal side we usually see little change from the normal. Purulent secretions, too, are seldom seem except in the form of small crusts. These stealthy cases have a trick of dumping their scant sewage into the nose at night, and when the patient appears for observation the nasal field has cleared up. If the condition is at all advanced the meager exudate gives off foul gases.

Periodical discharge from the pus sac is as a rule preceded by pain amounting to general facial neuralgia, and the cases are increasingly subject to infectious inflammations of the respiratory tract.

Several of my typical cases had all the "-ites" of the respiratory scale from chronic rhinitis to bronchitis and pulmonary cellulitis, yet despite the abscess having had a history of six or nine months, these respiratory inflammations cleared up with very little other treatment than cure of the abscess.

With the paucity of symptoms the diagnosis is correspondingly attended with difficulties.

Aspiration of the sinus is usually negative in results. Irrigation is only helpful when there happens to be a certain amount of pus in the sinus. Under similar conditions transillumination also fails. The X-ray is only helpful when the abscess has become thickened and the pus sac distended. Dental history, which should be furnished by the dentist, is often not obtainable, and that which the patient can give can not always be relied upon. The removal of a tooth will most frequently open the way to diagnosis if the dentist is fortunate to hit upon the offending one; yet we see this also fail if the tegumen of the alveolus is thick and the infectious tract sinuous, making probing impossible.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

Confronted by all these uncertain conditions nothing would be of such value to the rhinologist as access to a full dental record. Few rhinologists are willing to sacrifice a tooth on the usual meagre evidence; and the dentist is equally averse.

In this extremity about the only successful course of procedure would be to conduct the diagnosis through a sufficiently large opening in the anterior wall.

In regard to the frequency of antral empyema originating from the teeth: In my earlier practice, as I think was the case with many of my colleagues, I thought that as much as seventy per cent of these maxillary sinus cases were of that type; but we did not in our curetments of the sinus search for any particular diseased area toward the dental aspect of the antrum. I had indeed noticed in many cases masses of necrotic glandular tissue on the floor far forward, but it did not occur to me that underneath such a mass might be the key to the causative force.

It was not until I had done a number of Luc-Caldwell operations that I accidentally came upon one of these pus sacs after I had done what I thought was a thorough curetment. The soft fluctuating mass was in this case located far forward in a depression on the floor, the probe, which passed down easily into the alveolus of the premolar tooth, releasing a thimbleful of foul pus. The fangs of the extracted tooth were found wholly absorbed.

I do not know how many of these conditions had escaped me, but judging from the number of failures I have had in cases in which I had been otherwise most thorough, I believe they have been about as many as those in which these conditions were present.

As stated above in giving my reasons for bringing up this subject, I have found this condition, in two cases on which I did a second Luc-Caldwell operation, to have been the cause of failure on the part of the first operator.

In conclusion I may say that since I have, during the past year, happened upon this condition three times in the regular procedure of the Luc operation, I now make it a point after removal of the anterior wall of the sinus always to enlarge the opening sufficiently, and to take time to stem the bleeding, to enable me to examine minutely the whole floor of the cavity in search for necrotic areas and openings over the tegmen alveoli, and I think this is good practice even when the evidence is all against the origin of the infection from the teeth.

If I were presenting this subject before our dental brethren, as I have done on several occasions, I would consider the subject of the best methods of operative treatment in these cases, but to do so here would go beyond the intention of this paper.

I cannot close, however, without emphasizing the important fact that we, as rhinologists, should be more insistent upon getting more complete dental records, and that we should be more insistent also that the dentist should apply his prophylactic measures before this periosteal abscess forms and ruptures into the sinus.

The dentist, too, when he has arrested a suppurative process at the root of the tooth, should more definitely ascertain whether or not the affection has passed on to the antrum.

PELLAGRA A CURABLE DISEASE.*

M. O. SHIVERS, B. S., Ph.G., M.D., COLORADO SPRINGS.

Pellagra has made its appearance in the South in the last two decades, making rapid inroads in the population of this section and affecting thousands of people each year. The disease is of much importance, since it is rapidly spreading to all parts of the United States, having made its appearance in New England on the East and as far as the Rockies on the West. Pellagra seems infective in origin but not contagious, and must be communicated by an intermediate host, which may be bad corn, poor water or insects.

The causative factor or factors of pellagra have not as yet been determined. Clinical and pathological observations constitute the real source of our knowledge. One important fact, however, we do know, namely, that the seasons of the year affect the course of the disease, and this one fact supports the infection theory.

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*Read at the annual meeting of the Colorado State Medical Society, September 9, 10 and 11, 1914.

The recognition of this disease in experienced hands is an easy matter. For the untrained, however, it is quite difficult to diagnose. The manifestations of pellagra are so numerous that not only must general practitioners have a thorough knowledge of its symptomatology, but also specialists. The skin lesions carry the patient to the dermatologist, the gastro-intestinal manifestations engage the gastro-enterologist, the throat phenomena bring the patient to the laryngologist, the pathology of the nervous apparatus forces the neurologist into action, while abdominal pain and soreness bring the sufferer to the surgeon. Severe mouth symptoms may even bring the patient first to the dentist, consequently he too should be on the alert for this pathological entity. The disease is of special concern to the medical profession of Colorado, since many cases are being referred here on account of the cool climate that prevails during the summer.

Shall we wait until the cause has been worked out before a cure has been found, or mimic our achievements in malaria and syphilis, curing the disease many years before the etiology has been determined?

Four years' experience in Colorado convinces me that pellagra is a curable disease, notwithstanding that several years' observation in the South had proved beyond question that the malady was unmanageable. During the four summers I have seen in consultation or treated individually sixty-eight cases,[1] and most of them were of the "down-and-out" class, both mentally and physically. Cases treated came from the states of Texas, Georgia, Louisiana, Mississippi, Oklahoma, Kansas, Missouri and Colorado. Deductions from so small a number of patients, taking them as they come, mild as well as severe, may carry but little weight. But when we consider that the large proportion was of the severe type and the mortality but four per cent., or three deaths (one an alcoholic) in the sixty-eight cases treated, we must recognize the plan of treatment as an efficient one.

As to the treatment, I claim no originality, but believe for the first time we have grouped the suggestions of many of those most experienced with this disease in a manner whereby its complex pathology is easily controlled. In fact I know no disease that yields so readily and surely as does pellagra treated in the following manner. This statement can be verified from such men as Crawford, Sylverstein, Purser, Dickerson, Robinson and Young.

Prevention should take first place in the treatment of any disease, but until the causative agents have been determined, pellagra must be treated in the developed state. The first step in the treatment consists in putting the patient to bed in a cool, dark room and keeping him there until symptoms are under control. All patients, however mild the symptoms, should be kept in a dark room for from two to three weeks. If all pellagra patients were treated as seriously ill individuals, and truly they are, our end results would be much more satisfactory. If the disease is to be cured, it must be managed in a rigid and systematic manner. The most severe type must be kept in a dark room from three weeks to months if necessary. Patients are permitted, when convalescence is established, to be up after sunset and about in the evenings, and when they are able to go in the sun, broad-brim hats and white gloves are worn. If they are very ill, nothing but fruit juices are given, particularly carbonated apple juice, pineapple juice and orange juice. Later vegetables such as lettuce, spinach and tomatoes are given. Then, as the patient's stomach permits, soft eggs, buttermilk, meats, baked apple, and calves' foot jelly are added. Give no starches or sugars for the first eight or ten days, then begin with zwieback, later bread and potatoes. So many articles of diet contain corn starch that strict vigilance must be maintained if results are to be obtained. We believe a system free from corn starch and sugars has the best prospect of cure, and it is for this reason that our diet in the very ill, as well as in the mild cases, is sugar and corn starch free for a stated period, and the longer the better. We discourage all distilled liquors, but believe that grape brandy with eggs, milk and a little sugar forms one of the best articles of diet at our command for very sick pellagra patients.

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[1] More than 100 cases have been treated with only three deaths and five relapses.

Quietude should be maintained. Sleep is essential, and this is best accomplished by the administration of veronal and paregoric. Where the patient's nervous symptoms predominate, sodium bromide is given. Pain is best controlled by aspirin.

For the mouth, washes of permanganate, formalin and carbolic should be alternated hourly while awake. If the teeth are very loose they should be extracted. This has been done even in a young lady of twenty-two. Vomiting is controlled by fruit juices, loose bowels by bismuth, hydrastis and paregoric. For elimination, weekly doses of castor oil as well as daily rectal irrigations of saline are given. In females, daily douches of salt solution are added. Castor oil is given in smaller doses and more frequently when there is a tendency to diarrhea, paregoric being always added. Eruptions of the skin are treated by oxide of zinc and lanolin, keeping the parts well protected. We have to see our first case in which the skin lesions do not disappear in less than three weeks regardless of the amount of skin destruction. Salt baths are administered, and in the severe cases where burning is particularly pronounced, as in the feet, the parts are kept almost continually in cold salt solution.

Climate will check the progress of the disease but not cure it. This has been demonstrated by permitting the case to go untreated except by climate, to see all the symptoms disappear but have the patient return the next spring with all the symptoms reestablished.[2] It was Bass who called our attention first to climate as a factor in the cure of pellagra. His experience justified the statement that the cure would be effectual, and I think his deductions were correct in a small percentage of cases, but most of the cures are only arrests, and recurrences are too numerous to permit us to consider climate only as a valuable aid. Climate certainly aids wonderfully in the cure of this disease, but we are not fully convinced that it is absolutely essential in every case and it will take future experience in all altitudes and climates to determine the answer.

The drug that cures and keeps the case cured is arsenic. We believe it a specific if given in the proper environment and administered in the correct manner. We believe the bad effects of arsenic on the stomach make it impossible by this route to get enough into the circulation to cure the disease, consequently it must be administered hypodermically or intravenously.[3] Administered by mouth it is harmful, because it first convinces the physician that he is doing something; second causes the patient to think the best is being done that can be; third permits the harmful effects both to the vaso-motor system and the gastric mucous membrane. As to the dosage of arsenic, the more seriously ill the individual, the smaller the dose. Martin, of Hot Springs, well says: "Too much arsenic brings out the active agent", and it is the "over dose of toxin that hastens the final issue".

We have depended on cacodylate of sodium used in the following manner: Begin with ¾-grain daily for six or eight days, then 3 grains every second or third day for several weeks, gradually increasing the dose to 7 grains weekly. We have seen the bad effects of arsenic given in this manner in only one case in the series, and the consultants were divided in their opinion in this case. We all know that the symptoms of relapse in pellagra and of arsenical poisoning are quite similar. In only one case in which arsenic was administered in this manner was it necessary to resort to the intravenous method. The ease with which cacodylate of sodium can be administered makes this form of arsenic most valuable, requiring only a few minutes of the attending physician's time to teach the father, mother or friend how to give it. A ten-cent bottle of iodine will furnish all the asepsis and a fifty-cent glass hypodermic fills the bill. When the arsenic has been administered for a long period in advance cases, particularly in the nervous type, and results are doubtful, the administration of potassium iodide has yielded gratifying results.

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[2] Further experience with patients verifies more fully the statement that cool climate and diet do not produce a cure, and that climate and diet do for this class of patients merely what they will do for any other class that is down and out physically, that is, the improvement is only temporary.

[3] Cacodylate of sodium administered intravenously seems much more potent, more certain in action and no more harmful than when administered hypodermically.

Briefly stated, cool climate, confinement to a dark room, avoidance of corn starches, the giving of fruit juices, proper elimination, drugs and measures that control symptoms, and the administration of arsenic constitute the treatment. We believe that heat and sunshine as well as cornstarch act as a medium or stimulate the activity of the etiologic factor. We believe that coolness counteracts the etiologic factor but does not cure, but that if other measures are added the case can be carried on to a recovery which is not merely an arrest of the disease, but a permanent cure. For this reason all pellagra patients in the South that survive spring, summer and autumn should be heroically treated during the winter months. It is easy to whip an adversary when he is knocked down, so also is it a simple problem to cure this dreaded disease when coolness renders it quiescent. Some patients get well with indifferent treatment. Many would get well under the plan of treatment here outlined less the influence of climate. Probably the more severe type must seek high altitudes and cool climates for a cure.

REFRACTION AND CONVERGENT STRABISMUS.*

WM. H. CRISP, M.D., Oph.D., Denver.

It is now fifty years since Donders published his valuable work on the anomalies of accommodation and refraction of the eye. In that work the author made the statement that "strabismus convergens almost always depends upon hypermetropia". And again, "it is exceptional to find strabismus convergens without hypermetropia". And "hypermetropia is the primary anomaly . . . originally proper to the organ; strabismus is the secondary condition, and does not arise until some years after birth".

Since the time of Donders, such statements as these have been frequently repeated, and in theory generally accepted. Yet I do not believe we can too often or too thoroughly emphasize the etiologic importance of refractive error in the production of convergent strabismus. Our practice in this regard too frequently errs in the same direction as our practice concerning the correction of hyperopia for other symptoms, such as headache. We accept generally the view that hyperopia is the commonest cause of headache; yet when it comes to correcting this cause, too often ophthalmologists are content with only partially remedying the evil, that is to say, with giving a partial correction of the hyperopia. The common result is that the patient is relieved only temporarily, or not at all, of his pain and annoyance. In like fashion, although the influence of hyperopia in the production of convergent strabismus is widely recognized, too frequently the patient is treated with an incomplete correction of his hyperopia, with the result that the squint persists and resort is had to an operation whose results are in the long run just as disappointing. Or the course pursued may be even worse than this. While I would not suggest that such an attitude is at all general among ophthalmologists in good standing, there still seems to be an all too common tendency to regard convergent strabismus as a condition calling immediately for operation, without any refractive consideration whatever.

I have no intention here to consider those occasional cases of convergent squint which are due to such causes as muscular paralysis, or blindness from changes in the anterior segment of the eye. Nor shall I attempt to deal with the use of muscle exercises in aiding the restoration of normal muscle balance. It goes almost without saying, of course, that in many cases of convergent strabismus of long standing, operation becomes absolutely necessary before a satisfactory parallelism of the optic axes can be obtained. But the point, the commonplace if you like, which I wish to lay stress upon, is that thorough correction of refraction will cure the majority of cases of convergent squint if they are taken early enough; and at the same time that superficial or careless refraction work is no more likely to achieve the best results in this than in any other symptomatic group of cases.

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The old problem whether squint produces amblyopia in the squinting eye, or whether a primary amblyopia is responsible for the development of the squint is still an unsettled one. A case which I shall report shortly is perhaps rather in favor of the former opinion. It is hard to understand why some patients with pronounced hyperopia display absolutely no tendency to strabismus, while others with but little fault of focus show an early loss of muscular balance. But let us consider for a moment the explanation commonly accepted for the development of convergent squint in hyperopic eyes.

In most of the binocular lower animals there is probably no true fusion of the images received upon the two retinas. It may be that these animals have the power possessed by a few human beings, of directing attention to the impressions received by one eye, while the brain ignores the details communicated through the second eye. Neither the visual acuity nor the fusion sense is fully developed in the new-born child; so that in some of these cases at least we may consider both the amblyopia, when it is present, and the strabismus as representing rather failure of development of faculties than loss of faculties previously possessed.

In the normal pair of eyes, the ability to focus on near objects by contraction of the ciliary muscle, and the power of simultaneous direction of both optic axes upon the same near object, go hand in hand, the one faculty practically never being exerted without the other. If the ciliary muscle is contracted so as to bring a pencil point at eight inches sharply into view, the two eyes are at the same time converged, or turned inward toward one another, so that two straight lines continued through their respective optic axes will form an angle at the same pencil-point. Now in the hyperopic or far-sighted eye, the effort of accommodation required to see the pencil-point distinctly will be greater than that required of the normal eye, and will be relatively out of proportion to that required to converge the eyes on the same point. Thus the normal and probably more or less hereditary tendency to coordination of nerve impulses as between accommodation and convergence is upset, and it is argued that the muscles concerned in turning the eyes inward thus receive an excessive innervation. Since a definite attempt is being made to see one particular point distinctly, excessive convergence of the two eyes toward one another will lead to one eye fixing upon the object looked at, while the other eye does not see this object distinctly but looks to one side of it. In order to avoid the clashing of the two dissimilar images received upon the two maculas, the brain (it is argued) learns to ignore the image received by the squinting eye. If this is always the same eye, constant disuse of the eye may lead to failure to develop a normal visual acuity. If on the other hand the squint alternates between the two eyes, both may see equally well.

If a partial and inadequate correction of hyperopia, or of hyperopic astigmatism, be given, the fact that the efforts of accommodation and convergence are still not in normal ratio may explain why such eyes fail to become straight. The factor of fatigue must also be reckoned with. A fatigued nerve or muscle probably requires a more vigorous impulse of innervation than does one of normal tonicity. Thus if there still remains uncorrected hyperopia or hyperopic astigmatism, the disturbance of coordination will be even greater than is apparent at first sight. Moreover, in the fatigued organism central control becomes less effective, so that an especially difficult adjustment as between accommodation and convergence would be less likely to be maintained.

It is a matter of common knowledge that some patients only squint when tired, or squint more noticeably at such time.

It is important to correct any tendency to squint at the earliest possible moment. Even in very early infancy the refractive error can generally be estimated very closely by use of the retinoscope after instillation of atropin; and if examinations are not too prolonged, and care is taken to "seize the passing moments as they fly", it is surprising what can be done with a small child who at the first visit appeared terrified and unruly. Spectacles have, I believe, been fitted to children of less than one year of age. I myself have so treated several infants of slightly over two years, with very satisfactory results. A little girl whom I fitted last January with a pair of +6.00 D. spheres, heavy though the lenses are, is wearing them with the greatest enjoyment, and refuses to let her mother finish dressing her in the mornings until the glasses have been put on. This child was an interesting example of beginning tendency to squint. She had lately developed a habit, when trying to look at something intently, of poking a finger up into the corner of one eye; the effect apparently being to push this eye so far to one side that its vision did not clash with the vision of the other eye.

I will close this paper with a brief mention of a case which was to me of peculiar interest, and to which I have already referred before the Colorado Ophthalmological Society. The case illustrates an aspect of this question to which I believe reference is not made often enough; and that is that even if the squinting eye have the greater error and be amblyopic, full correction of the seeing eye is essential.

A boy aged nine years was brought by his father, a physician, for operation on account of turning in of the right eye, which had been noticed since the child was less than a year old. He had worn glasses since the age of two and a half years, and had been helped a good deal, but of late the right eye had been turning in more decidedly, and, in fact, was turned in almost all the time. An oculist in the boy's home town had refracted him two years previously, giving R. +2.50 sph. with +0.50 cy. ax. 90°, and L. +0.25 sph. with +0.50 cy. ax. 90°. Fixation was uncertain with the right eye. Vision was R. 1/40, L. 4/5 pt. Retinoscopy of the right eye under atropin, and retinoscopy and trial case test of the left eye under homatropin, led to prescription of the full refractive correction found, R. +2.25 sph. with +1.50 cy. ax. 95°, and L. +1.75 sph. with +1.50 cy. ax. 95°. It will be seen that the right eye was given a sphere of 0.25 D. less strength and a cylinder of 1.00 D. greater strength, than that which was being worn; whereas the left or seeing eye was given a sphere which was 1.50 D., and a cylinder which was 1.00 D. stronger than the old lens. The difference in the lens worn by the good eye appears to have been the determining factor in the case. The vision of the right eye was unimproved. As soon as these lenses were placed together before the eyes, there was but little evidence of the deviation, which had formerly amounted to 23 centrads. Several subsequent reports have stated that the eyes were more comfortable than before, and that the strabismus had for the most part disappeared, being perceptible only when the boy was particularly tired. It thus appears that in this case the undercorrection of the seeing eye was responsible for convergence of the other eye, which was practically blind so far as central vision was concerned.

318 Majestic Building.

DISCUSSION.

D. A. Strickler, Denver: One of the points upon which stress has been laid is the necessity of correcting the good eye as shown in the last case reported, and it seems to me that this is only logical, as that was the eye he was using. If there was any strain on it at all, the other eye would naturally squint to a larger extent; it is only in line with the logic of the situation as I would understand it in all cases. I concur with the author fully as to the good results obtained with full correction in cases of convergent strabismus with hyperopia.

Melville Black, Denver: There are two points that occurred to me that have not been touched upon by Dr. Crisp.

Somebody wrote an article, I do not know who it was, upon the use of a two-and-a-half-diopter bi-focal clip, in cases where over-correction still left a certain amount of squint. Not long ago I saw a child whose refraction was entirely corrected and who had three and a half diopters of hyperopia with a small amount of astigmatism in each eye. This child continued to squint at a certain distance and it occurred to me that this would be an excellent time to try the idea of a bi-focal clip; that was three months ago. The child was in the office two weeks ago and I found that this tendency had entirely ceased; that the child no longer squinted at the near point. Whether the use of the bi-focal clip was responsible, or whether the squint would have stopped had the child continued to use its full correction, is a question; but it seems a good point and I shall practice it in similar cases in the future.

There is another point, and that is, when to operate in the cases of children that have gone past the point of being relieved by the use of these refractive glasses.

We all see children only seven or eight years old, whose refraction we correct, after which we cover one eye or put atropine in one and often run six months or a year with no response. The squint remains in the eye irrespective of the fact that the hyperopia has been fully corrected. These children are sometimes very hard to handle, fearful they are going to be operated upon; have been ridiculed at school. The question is, shall we operate upon these children? Isn't it better to operate upon a child for squint under a local anesthetic? It is better to use a local anesthetic if possible, but it would be almost impossible to operate on some of these children under a local anesthetic. My practice has been to postpone operation until the child is old enough to have it done under a local anesthetic.

J. M. Patton, Omaha: It has been our custom to carefully refract these cases even in very young children. I recall one case that came to our notice a number of years ago, in a child of five months, with decided squint and with hyperopia of five or six diopters. Dr. Gifford corrected the hyperopia, and even at that age the little chap kept the glasses on, showing that he must have received some decided relief from them or at least some sensation that was pleasing to him. We have all had cases of squint where the patient showed only a moderate amount of hyperopia, the correction of which did not give as much result as we could wish. It has been our custom in these cases to fit the patient with bifocal pasters for close work, even in young children, as soon as they are old enough to begin looking at books, pictures, etc.

E. R. Neeper, Colorado Springs: There is one thing that I have heard mentioned, or I may have seen it somewhere in print in connection with these cases. If the squinting eye has one-half or more vision so that there is an incentive for it to fix with the seeing eye, on using atropin in the eyes so long as two weeks the result at the end of the two weeks will be the same as it will be after glasses are worn indefinitely. I think you can put this down as an invariable rule: Let your cycloplegia tell you whether or not that case is a case for glasses or for probable operation. If the squint disappears under atropin it can be made to disappear with glasses. Otherwise an operation will probably have to be resorted to.

W. A. Sedwick, Denver: I should like to ask Dr. Black or Dr. Patton how they are going to conclude the amount they will add for pasters in children.

Dr. Black: Two or two and a half diopters, putting the accommodation at rest at sixteen to twenty inches.

Edward Jackson, Denver: I think there are still a few men who are inclined to give partial correction for hyperopia in squint, as they do under other circumstances. In squint this is giving up without making an effort, and a full correction should be given. There are still men that are afraid of their determination of refraction in young children and do not give the full correction because they are afraid it will be an over-correction. I have seen cases where, with six or eight diopters of hyperopia, the children were wearing two or three diopters of partial correction, or less than that. A man who does not feel sure of his objective corrections would do better to send these children to someone else than to put on a partial correction. It is a serious reflection when one man's glasses do not do any good, and the next man's glasses cure the squint. A good many men "fall down" in correcting hyperopia in young children.

I think, as Dr. Crisp indicated, that it is the correction of the used eye that is essential for the correction of squint. But it is worth while also to correct the unused eye.

J. J. Pattee, Pueblo: I would like to ask the writer regarding the results in the different amounts of hyperopia. My experience has not been great although it has covered such cases as have applied to me for treatment during eight years of practice. The case of one diopter to one and one-half diopters often gives me very much more trouble than the case of four, five or six diopters. No doubt, hyperopia has much to do with causing strabismus, and one's inference would be that the greater the amount of hyperopia the less the chance of correcting the strabismus. In my limited experience I believe I have failed on many more mild cases than severe ones; therefore I should like to know if this is the usual experience of most of the men.

F. E. Wallace, Pueblo: I want to report the case of a child under two years of age. Under cycloplegia I determined six and a half to seven diopters of hyperopia with a little astigmatism in the right eye and greater astigmatism in the left. The exact amount I could not determine, that is, the exact amount of hyperopia or the exact amount of astigmatism. For each eye I put on a plus six for the present. Later on I will take another skiascopy hoping that I can make another correction. The mother states that the visual accuracy is improving.

W. H. Crisp, (closing): From the standard of the textbooks and of the general literature of the subject, most of what I have said in my paper sounds trite and stale, and every ophthalmologist who hears these statements of principle is ready at once to nod his head in approval and say that they exactly voice his own views and practice. Yet, as has been emphasized by Dr. Jackson, many ophthalmologists are still undercorrecting the hyperopia, or sometimes the astigmatism, which is present in most of their cases of convergent squint; and for this reason we cannot too often call attention to the need for the utmost possible accuracy and completeness in the refractive treatment of these cases. It is unfortunately true that in cases of convergent strabismus a great many muscle operations are still done which are unnecessary and bad policy. In spite of all our protestations, many of these cases get a muscle operation when they need accurate refraction work. The result of course is that the squint recurs, and the last state of the patient is often worse than the first. Operation should always rather supplement than precede refraction. As regards the class of cases which Dr. Pattee has mentioned, in which squint exists with a low refractive error, many of these cases seem to be hopeless undr any kind of treatment; and yet now and then we have seen the squint disappear after careful refractive correction of such a low error. It is probably well in the majority of cases to try refraction and auxiliary measures for some months before considering operation; as the amount of squint may at least diminish, and in that case the amount of change to be sought by operation will also be less.

A CASE OF ROCKY MOUNTAIN SPOTTED FEVER.

CHARLES H. FARTHING, M.D., MEEKER.

On April 4th of this year I was called to the mouth of Yellow Creek, a distance of thirty-six miles down the White River from Meeker. The elevation at Yellow Creek is about 5,700 feet.

I was called to see Mary McGruder, a child of seven years, who was attending school. Her parents had called me, suspecting some form of contagious disease.

The parents gave a history of the child having been sick since April 1st. She first complained of a distinct chill, with pain in the bones of the extremities, especially the legs and feet, loss of appetite, dizziness, vomiting, headache and backache and a marked sensation of her legs and feet being "asleep" when she was up. Constipation was marked.

On examination I found the temperature one hundred and two, and the pulse one hundred and of good quality. There was a slightly reddish macular eruption ranging in size from the head of a pin to a split pea, extending over the wrist, forearms, hands, feet, legs and forehead, with a few macules over the entire body. Stupidity was marked.

The lack of throat and eye symptoms caused me to hesitate as to a diagnosis. I had about concluded the child was not seriously ill when I noticed her scratching the back of her neck. I asked what was wrong with her neck and the mother informed me the child had a tick bite on her neck that was giving her a great deal of trouble. The mother had removed the tick a few days before the child complained of the chill. My suspicions were at once aroused, so I decided to keep the case under observation.

On leaving I advised the mother to notify me by letter on the 7th (stage day) as to the condition of the child.

On the 7th I had a letter from the mother telling me that the child was no better, that the eruption was of a deeper red and more profuse, that her eyes were badly inflamed, that she was still very dizzy and that her legs and arms were so tender that she would cry out when they were touched.

I was sure by this time of a case of Rocky Mountain spotted fever, and by return stage wrote (there being no telephone) advising the mother of my diagnosis and insisting that they bring the child to Meeker to the hospital at once.

On the evening of the 10th, as I was about ready to leave by stage for Rifle, to take the remains of my wife East for burial, the mother and father brought the case into the hospital. I made a hurried examination before leaving and found the temperature increased to one hundred and four and the pulse to one hundred and twelve, quality good. The eruption was more of a petechial nature, was far more profuse, covering the entire surface and had assumed a color almost purple.

I turned the case over that evening to Dr. A. P. Hubbard, who took care of it until my return on the 25th of April.

From Dr. Hubbard, and from the hospital chart, I found that the temperature during my absence had reached 105.6, with rapid pulse and some deliriousness. The high temperature continued about six or seven days, after which it gradually subsided. It was nicely controlled with baths and ice, and was normal about April 20th. The case was discharged from the hospital on the morning of April 25th.

I saw the case, with Dr. Hubbard, on April 27th, and found that the eruption had faded from a deep purple to a copper, and in some places to a bruised appearance. Recovery was complete. There was no gangrene.

ABSTRACTS OF PAPERS.

To Be Read at Forty-fifth Annual Meeting of Colorado State Medical Society, in Denver, Colorado, October 5th, 6th, and 7th, 1915.

(Received too late for publication in the August issue of Colorado Medicine.)

CASE REPORT: TRAUMATIC RUPTURE OF PANCREAS.

Charles B. Dyde, M. D., Greeley.

Report of the case of a boy of thirteen, who ruptured pancreas by falling under a saddle horse.

Symptoms, diagnostic difficulties, amenability to treatment and observations.

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*Read at the Annual Meeting of the Colorado State Medical Society, September 9, 10, and 11, 1914.

A CASE OF RELAPSING FEVER, ORIGINATING IN COLORADO, WITH POSITIVE BLOOD FINDINGS.

Charles N. Meader, M. D., Denver.

Brief review of literature upon occurrence of relapsing fever in the United States.

Brief account of infectious agent and supposed mode of transmission.

Case Report.

THE AUTOGENOUS VACCINE IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

Orville D. Wescott, M. D., Denver.

Pulmonary tuberculosis is a disease with a tendency to heal; and an uncomplicated tuberculous process not infrequently passes through its several stages all unknown to the victim, and heals.

Prolonged pulmonary involvement, seen in advanced cases, means almost invariably a mixed infection, with a fairly regular symptom-complex: chills, elevation of temperature, loss of body weight, depreciation of strength, night sweats, anorexia, constipation, pleural involvement, laryngeal disturbance, spitting of blood. Any one of these symptoms or a group of them may be present, and clinically are presumptive evidence of one or more of the micro-organisms of secondary mixed infection.

While there is a general concurrence of opinion as to the formation of antibodies, in the event of an acute infection, in the body fluids, the specific value of the so-called vaccines in promoting such an event is questioned by many, and the argument advanced that the mixed infections play but a subsidiary part. Clinically and as the result of exhaustive laboratory studies, by Wright and Douglas, Allen, Kolmer and others, the evidence favors mixed infection as the active factor in the general debility that supervenes in a previously uncomplicated tuberculous process.

Tabulated results of personal experience in the use of autogenous vaccine over a period of three years are submitted, and the explanation of the improvement noted is based on the comparative results obtained over the former "rest, fresh air, good food, and discipline", unaided by any specific treatment.

News Notes

Dr. J. L. Yates of Milwaukee will be the surgical guest of honor at the annual meeting of the State Medical Society in October, and will read a paper on the subject of Hodgkins' disease, illustrated with specimens and lantern slides.

On August 25th Dr. M. A. Goldstein of St. Louis, editor of the "Laryngoscope" and director of the Central Institute for the Deaf, gave an extremely interesting address on the education of the deaf, in the meeting hall of the Denver County Medical Society. Dr. Goldstein is a man of delightful enthusiasm and earnestness in his subject.

Dr. and Mayor Sharpley recently introduced before the Denver City Council a bill to empower the Council to determine whether buildings shall be erected at given locations; one object of the bill being to give the Council power to allow the erection of the new Children's Hospital at East Ninth Avenue and Downing Street.

Dr. J. C. Todd, although in better health, is still unable to resume his duties in connection with the medical college at Boulder. Dr. Ross C. Whitman will therefore take up the work of secretary to the first two years of the medical course, retaining his position as professor of pathology. Dr. Charles N. Meader has been appointed secretary to the third and fourth years of the medical school, conducted in Denver; and the teaching and laboratory work in Denver, formerly carried on by Dr. Whitman, will be assumed by Drs. Philip Hillkowitz and E. R. Mugrage respectively.

The New York Department of Health is making serious efforts to get the local physicians to render more accurate returns of the causes of death in patients who die directly or indirectly from alcoholism, syphilis, or gonorrhea. It is suggested that objections to this procedure may be met by the employment of medical terminology, such as Ethylism, Ethylic Hepatitis, Salpingitis (probably Neisserian), Hepatitis (probably Spirochetal).

The State Industrial Commission has adopted an advisory schedule as a basis on which physicians' charges are to be allowed under the new workmen's compensation law.

Two hundred and ninety-two books, mostly from the library of the late Dr. G. H. Stover, were lately sent from the Denver medical library to the medical library at Fort Collins, Dr. Stover's native town.

Dr. S. R. McKelvey, secretary of the State Board of Health, states the unusual number of typhoid cases in Denver and adjacent districts to be due to an unsatisfactory condition of the sources of water supply and to the improper care of lakes used for bathing.

Dr. E. R. Coffman, deputy health commissioner in Denver, is planning to provide parents with certified copies of the birth certificates of their children. He hopes in this way to create such a demand for the certificates as will in time make it necessary for physicians to become regular in recording births which occur under their care.

Dr. Sharpley filed with the Denver Civil Service Board the "constructive resignation" of Dr. M. E. V. Fraser as county physician, on a charge of having been absent from duty for five days without leave. Dr. Fraser's appeal to the Civil Service Board against this virtual dismissal was uncessful.

Dr. Miller E. Preston has resigned his position as police surgeon in Denver. His place has been filled by the appointment of Dr. V. D. McKelvey.

The American Association for Study and Prevention of Infant Mortality will hold its sixth annual meeting at the Hotel Bellevue-Stratford in Philadelphia on November 10th to 12th, 1915.

On August 17th the Montrose County Medical Society gave a banquet to the Delta and Mesa County Societies. The attendance was nearly fifty. Dr. C. E. Lockwood of Olathe, president of the Montrose society, had charge of the program. Papers were read by Drs. C. W. Plumb of Grand Junction, Edgar Hadley of Telluride and Lewis of Hotchkiss.

Drs. W. T. H. Baker, E. A. Elder, M. J. Keeney, Fred M. Heller, Philip Work, C. F. Taylor and F. E. Wallace have been appointed to the medical staff in Pueblo of the State Industrial Commission.

County Physician Peters of Pueblo is urging the building of a county hospital for the care and treatment of the sick poor of that city.

The death of Dr. Louis H. Schultz from lightning on August 14th, while driving his automobile in Aurora, not far from the city limits of Denver, came as a great shock to his many friends and acquaintances.

Dr. F. N. Cochems of Salida has been having a good deal of trouble as a result of the wound which he sustained by the explosion of a shotgun shell.

Dr. Finley McPherson of Olney Springs died in a Pueblo hospital on August 31st, aged 50 years, after a month's illness.

Dr. E. E. Bartlet of Lamar died in a Denver hospital on August 13th. He graduated in Berlin, Germany, in 1886, and was licensed in Colorado in 1899.

Dr. J. F. Kearns of La Junta has had his full share of trouble lately. Shortly after breaking his right arm while cranking his automobile, his wife presented him with a baby girl.

Dr. F. D. Pratz, Holly, has sold his practice to Dr. M. A. Broemser of St. Louis. Dr. Pratz will return to Illinois.

Drs. Wilson and Sherman, both of Holly, spent the month of July visiting the California Expositions.

Dr. C. W. Elkins has been appointed surgeon to the Vindicator mine at Cripple Creek.

Dr. Philip Work of Pueblo was married on August 18th to Miss Helen Taylor Tuttle. Dr. and Mrs. Philip Work will be at home in Pueblo after September 15th.

Dr. H. S. Cooper has located at Durango.

Dr. E. E. Martin of Carr has been planning to locate at Platteville.

Dr. Margaret Long of Denver was recently called to Hingham, Mass., by the fatal illness of her father, John B. Long, former secretary of the U. S. Navy.

Dr. J. M. Perkins was the victim of theft from his automobile garage on August 20th. A number of automobile accessories were taken.

Dr. Ward Burdick has become associated with Dr. William Whitridge Williams in the practice of clinical and surgical pathology in the Metropolitan Building, Denver.

El Paso County Notes.

Dr. and Mrs. Chas. O. Giese were recent visitors in Denver.

Dr. E. M. Marbourg returned early in August from a trip to the Pacific coast.

Dr. and Mrs. H. C. Watt returned recently from an outing on the Gunnison River.

Dr. C. S. Morrison of Colorado City was called to Fayette, Mo., by the serious illness of his mother.

Dr. A. C. Magruder and family were visitors to the Atlantic coast during August.

Dr. C. F. Gardiner and family had an outing at Manitou Park during August.

Dr. G. S. Vinyard of Colorado City is seriously ill.

Dr. J. H. Brown and family are spending their vacation at the Skelton Ranch near Woodland Park.

Book Reviews

The Principles of Human Physiology. New (2nd) edition. By Ernest H. Starling, M.D., F.R.C.P., F.R.S., Jodrell Professor of Physiology in University College, London. Octavo, 1,271 pages with 566 illustrations, including 10 in colors. Cloth, $5.00, net. Lea & Febiger, Publishers, New York and Philadelphia. 1915.

The compass of this magazine would be none too great if devoted wholly to a categorical review of such a work as this. In the few words allotted to the purpose it were best to aim simply to designate its place on the book shelves of the doctor. The world is overburdened with medical compilations, but Starling's book is not one of them. The author is a master in his profession. With a sound general preliminary education, whose necessity as a basis for a medical career has never been forgotten in England, Starling early won his way to the distinguished post of the professorship of physiology in University College. For many years his laboratory has been the site of physiological research. His discovery, in company with Bayliss, of secretin marked one of the longest strides in physiological knowledge since Claude Bernard. The work under discussion is not meant for the "tyro." Its pages yield only to him who has a fairly thorough education in biology, chemistry and physics. Yet what will you have? Every medical meeting has to do with the metabolism of amino-acids, with the osmotic presence of electrolytes, with the theories of immunity. The complexity of our intellectual tools must be coordinated with the problems of the intellect, and these problems, if we but see them, confront us across every sickbed. Now it is too much to expect of us that we shall keep in mind, like a candidate for examination, the special findings in a hundred fields. We need now and then to consult authority to learn the meaning of the things we hear and to have a judicial expert weigh for us the values of scientific testimony. Starling's Human Physiology goes far towards providing a court of appeal in the matters within its scope. Not that it is a reference book, merely; on the contrary, it is a fascinating story of militant vitality which the reader is loth to lay down.

Foregoing the privilege of adverse criticism, which in any case would be limited to matters of minor import, the reviewer would especially recommend as appropriate to recent medical researches the pages dealing with the chemistry of proteins, the assimilation of carbon and the neuromuscular function. H. S.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago; June, 1915. Published bimonthly by W. B. Saunders Company, Philadelphia and London. Price per year, $8.00.

This issue of the clinics contains clinical talks on injuries of the carpus and a number of other bone and joint injuries; a talk on appendicitis; one on intestinal obstruction due to a large gallstone; a clinical talk by William J. Mayo on unsuccessful gastro-enterostomy for ulcer; a series of drawings illustrating Murphy's method of suturing a pedicled muscle flap into the laminectomy defect after intradural operations; etc., etc. The usual excellent standard of text and illustrations is well maintained.

Cancer: Its Study and Prevention. By Howard Canning Taylor, M.D., Gynecologist to the Roosevelt Hospital, New York; Professor of Clinical Gynecology, Columbia University; Member American Society for the Control of Cancer, etc. 12mo, 330 pages. Cloth, $2.50, net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This volume presents in a clear, well-classified manner a review of the facts of cancer, and a practical application of these facts to the various organs affected by it.

There is a striking absence of padding and of theorizing. Statistics are referred to and discussed frequently, but always briefly and to the point.

The book presents concisely and exclusively the practical aspects of the subject of cancer and is highly recommended to the members of the medical profession and to everyone interested in the subject. C. F. H.

The Prevention and Treatment of Infections. By Oliver T. Osborne, A.M., M.D., Professor of Therapeutics and formerly Professor of Clinical Medicine in Yale Medical School; member of the Council on Pharmacy and Chemistry, etc. The Journal of the American Medical Association, Chicago.

This little book, intended as a practical handbook for the use of the physician, hygienist, teacher and school inspector, is an elaboration of a series of articles which appeared in the American Medical Journal under the title "Prevention Is Greater Than Cure." The book begins by taking up, in a short way, some of the common factors of immunity, as sleep, water, air, bathing and school hygiene. This first chapter also touches upon such subjects as ophthalmia neonatorum, mine sanitation and eugenics.

The second chapter speaks of vaccine prevention and therapy. Later the book takes up the school, its sanitation and hygiene and a proper supervision of the child's school life.

The last half of the book gives the etiology, prevention and treatment of all the common infections, beginning with colds and including hookworm disease, meningitis and anterior poliomyelitis.

The book makes a handy manual and fills very commendably the purposes for which it has been intended. M. R. S.

A Synopsis of Medical Treatment. By George C. Shattuck, M.D. Second revised printing of the second edition. Price, $1.25. W. M. Leonard, Boston, publisher.

That a second edition and repeated printings of this little book should be necessary indicates its worth.

It is valuable in the fact that it contains the general principles of treatment employed in a large hospital like the Massachusetts General Hospital.

The medical treatment of the different diseases is briefly outlined and a concise statement made of the hygienic measures and drugs used.

A synopsis of all the medicinal agents commonly used, supplemented by those occasionally used, is also given, and is followed by tables of weights and measures.

Thus this volume makes a very useful handbook for the busy practitioner and for the student. M. R. S.

A Text Book of Surgery for Students and Practitioners. By George Emerson Brewer, A.M., M.D., Professor of Surgery, College of Physicians and Surgeons, New York; Surgical Director, Presbyterian Hospital; Consulting Surgeon, Roosevelt Hospital, assisted by Adrian V. Lambert, M.D., Associate Professor of Surgery, Columbia University; Attending Surgeon, Presbyterian Hospital; and by members of the surgical teaching staff of Columbia University. Third edition, thoroughly revised and rewritten. Octavo, 1,027 pages, with 500 engravings and 23 plates in colors and monochrome. Cloth, net, $5.50. Lea & Febiger, publishers, Philadelphia and New York, 1915.

This adds another to the already numerous books of its kind. It covers a very wide field in its one volume. So great is its scope that it is quite thin in some places.

The chapters on the general topics of surgery are very short. Much that is of value to the student is sacrificed for brevity.

The chapters on the specialties seem a little out of place, though they are good. The student gets them at another period in his course and more in detail.

The chapters on Lymphatics, Surgery of the Nervous System, Mammary Gland, Hand Infections, Bones and Hernia are exceptionally good, making the book as a whole a distinct addition to the surgical text books. C. F. H.

Miscellaneous Minor Publications (excluding reprints) received since publication of the June issue of Colorado Medicine:

(1) Sixth Annual Report of the Committee for the Prevention of Blindness, State of New York; (2) Transactions of the Vermont State Medical Society for the year 1914; (3) Municipal Ordinances, Rules, and Regulations Pertaining to Public Health Adopted During 1913 by Cities of the United States Having a Population of Over 10,000 in 1910 (Public Health Reports U. S. A.); (4) State Laws and Regulations Pertaining to Public Health Adopted Between July 1, 1911, and December 31, 1912 (Public Health Reports); (5) Baking Powder, a Healthful, Convenient Leavening Agent, by Thomas G. Atkinson, B.Sc., M.D.; (6) Concerning Common Causes of Blindness in Children and the Means and Methods of Prevention, National Committee for the Prevention of Blindness, New York.

New Fee-Spliting Law in Wisconsin.—In 1913, following considerable discussion of the fee-splitting evil, the Wisconsin Legislature passed a law making it a fraud for a surgeon to offer or to pay a commission for surgical patients referred to him. No penalty was imposed by this law on the receiver of the commission. An amendment recently passed by the present Legislature provides that "any physician or surgeon . . . who shall . . . demand, receive or retain any money or other consideration directly or indirectly from the physician or surgeon treating or operating on the patient so induced or advised shall be guilty of a criminal fraud." The penalty for either giving or receiving a commission for surgical cases is fine or imprisonment, while conviction is made an automatic annulment of the license to practice. The Journal of the American Medical Association thinks that the law as amended should be broad enough and strong enough to put a stop to whatever fee-splitting evil there may be in Wisconsin.

CAT.

JOHN R. ESPEY, M.D.,
President Colorado State Medical Society, 1915-1916.

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Editorial Comment

THE DENVER MEETING.

The meeting of the State Medical Society just held in Denver broke the society's record in the matter of attendance, the total registration being 406. Of the quality of the meeting, both as a scientific gathering and from the social standpoint, many pleasant things were said. Some of these our former president, Dr. O. M. Gilbert, has written down in a letter addressed to the editor of Colorado Medicine, and which it seems proper to reproduce here:

> "Dear Sir:
>
> There have been so many enthusiastic expressions on the part of the visiting members and their wives concerning the phenomenal success of the meeting just closing, that it seems but fitting that some one should express to the members of the Denver City and County Medical Society and their wives something of the appreciation which we as visitors feel.
>
> In point of attendance, excellence of scientific program and enjoyable entertainment, this meeting will go down in our memories as one of the best. The hosts have been untiring in energy, and unsparing in expense in making the stay of their guests as pleasant and profitable as possible. The various luncheons, dinners, parties, drives, and the like, the success of which was in large part due to the efforts of the local committee of ladies, could not have been excelled.
>
> The scientific program in point of excellence, variety, and the character of the men who took part, is to be highly commended. We were particularly fortunate in being enabled to listen to such visitors as Councilman, Yates and Rich. Each of these men brought a message to us, which will help to inspire us through the years to come. It is an interesting fact that every paper announced on the program was presented at the meeting.
>
> Something should also be said for the excellent service furnished by the hotel management. Every courtesy was extended to the visitors.
>
> I am sure I am expressing the sentiment of the guests as a whole when I say that we shall all look forward with pleasant anticipation to the time when we shall again be the guests of our brothers and sisters of the Capitol City.
>
> Very sincerely,
>
> O. M. GILBERT".

OUR NEW PRESIDENT.

The Colorado State Medical Society has again elected a surgeon as president. Dr. John R. Espey's work takes him a great deal among recent immigrants from the continent of Europe, but he himself is a thoroughbred American. He was born in 1864, at Rising Sun, Indiana. His first American ancestor was one Deacon Samuel Haines, who settled in New Hampshire in 1635. Dr. Espey is proud of being a member of the Sons of the Revolution. After receiving his high school and college education in his native state, he graduated in medicine from the Jefferson Medical College in Philadelphia, in 1889. He was appointed on competitive examination as interne in St. Mary's Hospital, Philadelphia, where he saw service under Keene and Deaver. In August, 1890, he located at

Trinidad, Colorado, where he has remained for a quarter of a century. He has held all the offices of the Las Animas County Medical Society, and has served as first vice-president and on various committees of the State Society. For the past fifteen years he has been chief surgeon of the Victor-American Fuel Company, whose work from all over the state is sent to the St. Raphael Hospital in Trinidad.

IMPORTANT THINGS DONE BY THE HOUSE OF DELEGATES.

In addition to the election of Dr. John R. Espey as president, the following are some of the most important things done by the House of Delegates of the Forty-fifth Annual Meeting of the Colorado State Medical Society:

(1) Planned to hold the next meeting at Glenwood Springs in September, 1916.

(2) Appointed a committee to revise the by-laws.

(3) Made an appropriation for an organizer.

(4) Endorsed the movement for a National Examining Board.

(5) Appointed a committee to look after the welfare of the profession under the Employees' Compensation Act.

(6) Made an appropriation for the State Medical Library.

(7) Decided to recommend each county society to elect a special officer to report the proceedings of the society for Colorado Medicine.

(8) Decided to take a referendum vote on the matter of provision for medical defense.

(9) Made the committee on cancer research a permanent committee.

POSTGRADUATE NEUROLOGIC STUDY.

In the issue of Colorado Medicine for November of last year we called attention to an announcement that the neurological staff of the Philadelphia General Hospital had organized a post-graduate school of neurology. The printed announcement of this course pointed out that "owing to the terrible war in Europe, it will probably be one or two years at least before American students can avail themselves of the neurological clinics and laboratories of London, Paris, Vienna, Berlin, Rome and other centers of medical instruction abroad". Europe is still committing suicide, with results generally harmful, but in some respects beneficial, to this country. The Philadelphia Post-graduate School of Neurology has issued its second announcement. This school, drawing comprehensively upon the neurological services and laboratories of such a city as Philadelphia, should offer splendid opportunities for study in this special branch of medicine. Its faculty is of thirty-one specialists, headed by the following members of the neurological staff of the Philadelphia General Hospital: Chas. K. Mills, Dean; Chas. W. Burr, Wm. G. Spiller, Jas. H. Lloyd, Chas. S. Potts, D. J. McCarthy, T. H. Weisenburg and Geo. E. Price. It is the first distinctly departmental post-graduate school devoted to nervous diseases to be established in this country. The courses are arranged in periods of six weeks, and the time-table runs between the hours of 9 a. m. and 6 p. m. for five days of each week. It is to be hoped that enterprises of this thorough character in medical education will multiply in the United States.

RELAPSING FEVER IN COLORADO.

The superficial or indolent mind often tends to assume that the fields of original research in medicine are rare or distant as regards the general practitioner; and too many of us are unwilling to believe that important but hitherto undiscovered facts may come knocking at our very door. The average medical graduate or practitioner, if asked to state the extent of his knowledge concerning relapsing fever, would be likely to reply that it was a febrile disorder, that its course was marked by recurrent attacks, and that it was a disease of remote regions of the globe. It was refreshing and stimulating to be told at the State Society meeting that a group of five cases of this disease had been observed in Colorado, although apparently it had never before been recognized in the state. Dr. Meader is to be congratulated upon the mental receptivity and the accurate laboratory technique which enabled him in the first place to consider the possibility that he was dealing with this particular complaint, and in the second place to prove his surmise correct by demonstrating the organism in the blood.

Relapsing fever is one of those ailments whose micro-organism is probably carried from one human individual to another by an intermediate host; but although both the bed-bug and the tick have been accused, the evidence is not so far adequate to fasten the guilt upon either of these insects. With one exception the cases recorded by Dr. Meader were members of a camping party on Bear Creek, above Mt. Morrison, Colorado. For some days their encampment was rather frequently visited by a party of true Gipsies who were living in the same vicinity. It may be that these Gipsies had come from a considerable distance, bringing with them the spirochetal infection or at least vermin in whose blood the organism circulated.

The disease is rarely fatal, but its occurrence is of epidemiologic importance. The characteristic features are acute onset with very high temperature, resolution by crisis after an average period of six days, and a similar interval of freedom from disturbance, followed by a second and often a series of like attacks. The spleen is enlarged, and in the first attack the disease may be mistaken for typhoid fever. The spirilla are found in the blood only during the fever.

THE WAR AND MEDICAL WOMEN.

Along with the tearing up of "scraps of paper", interference with "neutral" commerce, enormous wastage of human life and energy, and the changing of political boundaries, the European war is producing some other effects which may (or may not) ultimately be of greater benefit to the world. Among these is a startling increase in the spheres of activity of women. We are accustomed to the part played by women as nurses in every war; and it is not unusual for the women who are left behind on the farms to take up the plough and the scythe which have dropped from the hands of the warrior. During this struggle the women are driving grocery wagons, street cars, and motor busses, and, pacificists though they be, are manufacturing munitions of war. Many English women who before the war were breaking windows and assaulting cabinet ministers in the name of female suffrage, are now training for semi-military service in case of invasion.

The United States have been liberal in the admission of women into the learned professions. There is a good sprinkling of women lawyers and dentists, and neither male practitioners of the healing art, nor the public at large, longer find anything very strange about the practice of medicine by the gentler sex. In every large community women physicians are fairly numerous, and some have even undertaken the rougher work of the village and rural district. A large proportion of our medical schools are open alike to male and female applicants.

The same is true of medical schools in Ireland and in what are known as the provinces (extra-metropolitan areas) of England and Wales. But in London there is still active opposition to allowing women to work at the men's schools. Within this year, states Dr. Jane Walker (The Practitioner, September, 1915), a number of women students were received at one of the general hospitals, and worked in the wards and outpatient department, but the experiment came to an end "because the men students did not like the women working with them". Another London medical school has recently discussed and vetoed the advisability of admitting women as students.

It appears that, since so many physicians have been required for service at the front, the men have been quite willing that women should take their places as hospital residents or in other capacities, but Dr. Walker suggests that they will expect the women to give up their posts with smiling faces when the men return at the end of the war. Many, however, will not return, and consequently, she says, the preservation of the health of the nation will tend to be more in the hands of women than was the case before the war. Recent advertisements for physicians show a great development of willingness to accept women for hospital positions. One large country general hospital is quoted as having applied to the Women's Medical School to "send us any woman at any salary". Many medical women and students have been serving in responsible positions in Belgium, France, Serbia, and the Mediterranean. The London "Lancet" recently said: "In much of the glut of work at home women are playing their part, and the country has observed with pleasure that the war has given to them a fresh impetus towards the study of medicine."

If the civilized world must continue to carry on gigantic wars, the ordinary supply of medical men is likely to prove insufficient in the emergency. Many women who have graduated in medicine fail, on account of marriage or for other reasons, to practise at all after graduation, or only practise for a short time. It thus seems that a positive advantage would be gained by the training of larger numbers of medical women who in time of need might volunteer for service with the armies or in civilian practice.

MOTHERS' WORK AND INFANT MORTALITY.

With the nations of Europe insanely spilling their best blood upon the soil which nurtured them, it seems pitiful and almost vain to discuss the conservation of life. To the humane and thoughtful mind there is something repulsive in the idea of breeding and feeding human animals, like dumb cattle, for no higher destiny than the slaughterhouse. Yet what fire and flood consume, the patient labor of years endeavors to restore, and the constructive idealism of the race will not consent to give up the struggle towards better things because for a while malice and hatred, wanton cruelty and destruction run riot in the world.

Slowly we are studying on the one hand the fundamental maladies of the body politic, and on the other the stubborn diseases of the individual. The more intimately we trace out cause and effect, the more closely interwoven we find the workings of economic law and the physical well-being of the people. Deeply considered, no greater impulse toward social reform can be found than the vigorous pursuit of public health. Considerations of this kind carry us into all departments of life. The tropics cannot be satisfactorily settled, nor their rich possibilities exploited, without controlling the deadly diseases which have infested them. It is hard for the poor of our own southern states and of other important areas of the world to avoid infection by the hookworm while they are unable to obtain the wherewithal to pay for good shoes to cover their feet. The slum is not merely the breeding place for social unrest, but for diseases which may prey upon the rich.

If the children of the poor die in early infancy, who is to provide the subordinate labor of the next generation? Both during infancy and in later life, the higher death rates are in the wards of cities where poverty is most common; and the lower in those where the means of the inhabitants are in higher ratio to their needs. According to a survey by Louis I. Dublin, statistician to the Metropolitan Life Insurance Company and member of the advisory council of the Department of Health of New York, the annual death rate among the infants born in Fall River, Mass., is 202.3, more than twice as high as that which is recorded for a number of large cities. Dublin regards the participation of mothers in work outside their homes as an important factor in the infant morbidity. "There can be no question," he says, that the infants whose mothers were gainfully employed showed a much higher death rate than those whose mothers were engaged in housework only." The reason why so many of these women are engaged in work outside their homes is found in the fact that their husbands do not earn enough to keep a family in good health. "Of fathers engaged in textile work, the weekly wages were stated in seventy-two cases. The average weekly wage for the group of seventy-two was $10.22."

It is hard to conceive of good citizens, in the full sense of the expression, being developed in surroundings such as these. The foundations for lives of the greatest efficiency cannot be laid upon a family income of $10.22 per week. The matter goes deeper than the snuffing out of so many diminutive lives. The stigmata of gross poverty are stamped upon the living as they grow up and step out into the world. But, as Dublin well says, the literature is replete with evidence of the strong positive correlation between low family income and high infant mortality. "It is the factor of income which determines the number of rooms occupied, their location in the city, the amount and character of the food, the need for supplementary work by the mother outside the home, and other considerations which bear directly upon infant mortality."

Original Articles

THE PRESIDENT'S ADDRESS.*

GEORGE B. PACKARD, M.D.
DENVER.

Members of the Colorado State Medical Society. It is a pleasure as well as a privilege to greet you in this city, at this, our forty-fifth annual meeting. I wish also to again express my appreciation for the honor you conferred upon me in electing me to preside over your deliberations at this time, and to thank the various committees and officers for their most valuable assistance and cooperation.

Starting only a comparatively few years ago, with a very small membership, this society has grown rapidly in numbers and scientific attainments, until now it ranks among the best and most active of state societies. Many of its members have come from various medical centers of the East, where they had already gained a national reputation from their writings, their scientific attainments, and their positions of honor. The influence and standing of this society are also shown by the large number that are members of the exclusive national societies.

During the life of this society, wonderful advances in the science of medicine have occurred. The greatest achievements during this time have been in the field of bacteriology, which has not only taught us through Pasteur's researches the cause of many diseases, but with Lister's wonderful work it has surpassed all other departments in its revolutionary character. And through the wonderful labors of these two men, its first practical application to human disease was made in the field of surgery.

As a result of this discovery, we are able to perform surgical operations without infection, and therefore almost without danger. The range of modern surgery has therefore been greatly increased, and unless one has witnessed the methods and observed the results in the old surgery, or the period previous to this discovery, one can scarcely appreciate the change, and the widening of the field of operative work.

Think of the marine sponges which harbored multitudes of germs, which were used previous to our knowledge of bacteriology. I well remember the internes of Bellevue Hospital assisting at operations, with a button-hole of their coats filled with undisinfected silk ligatures for tying blood vessels. One end was cut short and the other left long. After about ten days it was customary to pull on the ligature, and if the blood clot had become adherent to the wall of the artery all was well. But the danger of secondary hemorrhage was very great, as infection was generally present, and was liable to prevent the clot from becoming adherent. Previous to Lister's researches, the average mortality of the four major amputations (arm, forearm, thigh, and leg) was about 40 per cent, whereas it probably would not exceed 5 per cent now. Surgery of the abdomen, chest, and brain of course could not be done with safety.

Progress is constantly being made along these lines, and today the "portals of entry" of these infections is a subject of great interest to the profession, and great advances are being made by these studies, particularly as regards the etiology and treatment of the arthritides. The early recognition of the focus of infection, and its prompt removal in these cases, form one of the recent triumphs in modern medicine.

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*Delivered at the Annual Meeting of the Colorado State Medical Society, October 5, 6, and 7, 1915.

Preventive medicine has also developed wonderfully and achieved most brilliant results from these discoveries, regarding the causation of disease. With its success in eradicating such diseases as yellow fever, bubonic plague, and malaria, it has proved to the laity, not only the progress that is taking place in preventive medicine, but the important and unselfish work that is being done by the medical profession.

There has also recently been a return to psychical methods of treatment and I am satisfied it has a legitimate place in modern therapeutics. To appreciate the power or value of faith in something through suggestion to the patient, one has only to visit St. Anne de Beaupré, near Quebec, and see the remarkable cures that are constantly taking place by suggestion. This is undoubtedly the explanation of the increase of the various cults of healing during a period of most remarkable progress in scientific medicine.

After this brief review, I think we must acknowledge that we owe a duty to those who have preceded us, and made such wonderful advances in the science of medicine. Future achievements in medicine are suggested by what has gone before and we may feel quite sure that many unexpected things will happen.

The improvements in diagnosis from the Roentgen-ray and modern laboratory methods, together with the development of operative technic, are contributing to our present progress.

At the present time, great interest is manifested in the function and diseases of the ductless glands. We are indebted to Cushing for his brilliant work concerning the pituitary gland, and diagnoses of grades of disturbances of function of these glands are now frequently made, and no doubt the near future will show still more brilliant achievements.

The following incident is a notable illustration of what is being done along these lines. While I was attending a clinic recently in Berne, Switzerland, where the younger Kocher was removing a portion of the thyroid gland for a case of exophthalmic goiter, he remarked that six years previously, he had transplanted a portion of a thyroid gland to this patient, as she was suffering from myxedema. The secretion was increased to such an extent that he found it necessary to remove a portion of the gland. It is quite possible that in the future we may be able to control these disturbances of metabolism and thus govern many other diseases such as diabetes mellitus, acromegaly, and gout.

We are most fortunate at this period to have such wonderful opportunities for advance in medical research. When we think of the Rockefeller Institute in New York, the Memorial Institute for Infectious Diseases in Chicago, the Brigham Hospitals in Boston, and many others with their millions in endowment funds, we can appreciate that never in the history of the world have the opportunities for progress been so great.

A great deal of interest is now being manifested in the subject of cancer, and a great movement is in progress to enlighten the public on its cause, early recognition, prevention, and treatment. This movement has received the official endorsement of the Constituent Societies of the Congress of American Physicians and Surgeons, The American Medical Association, and many other national and sectional societies.

A committee was appointed from this society a year ago to cooperate with The American Society for the Control of Cancer. The purpose of this society is "to disseminate knowledge concerning the symptoms, diagnosis, treatment, and prevention of cancer, to investigate the conditions under which cancer is found, and to compile statistics in regard thereto". It is known that cancer is not a constitutional disease, but is at first a local growth which can at the time be removed by surgical operation. Therefore the importance of a careful campaign of public education cannot be too strongly emphasized.

Great care, however, should be exercised in conducting this campaign of education of the public, by selecting proper speakers and standardizing, as far as possible, what should be taught. No doubt harm can be done by increasing the fear of the public, unless hope and faith in the early recognition and treatment are properly explained, and most thoroughly and carefully dwelt upon.

The state and county societies can be of great assistance in this campaign of education, and should endorse the movement, and cooperate in every way with the National Society.

To still further educate the public on matters of sanitation and health, we should begin with our public schools. Preventive medicine should have its first application here, for our future generations here get their first impressions. I wish, therefore, to call attention to and to encourage interest in the subject of medical inspection in schools, which has been established in many cities and states, including Colorado. Several states have passed laws requiring it and others are showing great interest. As a result of these examinations in various places, it has been shown that a very large percentage of the children have some defect or disability that is interfering very materially with their progress in school. Many of these conditions are amenable to treatment, such as myopia, throat and ear trouble, defective teeth, scoliosis, and many other conditions that retard the school work as well as the physical development. I think this is a matter of vital importance, for the physical wellbeing of the child is necessary to promote a normal intellectual development.

The medical inspector should co-operate in every way with the department of health, especially regarding infectious and contagious diseases, which should be under control of the board of health. He should also be assisted in his work by a school nurse, who should give a good deal of time in following up the cases as may be directed by the inspector. The excellent work of the school nurse in several of our cities has frequently come to my notice. The educational value of this work to the public is already proved, and is to be most thoroughly commended.

A new medical licensure law was enacted during the last session of the Legislature. While it may not appeal to us in all respects, yet I believe it will be a great improvement over preceding acts, and will be of definite value in the interest of public health. It is much better to make certain concessions, if a multiplicity of boards can be prevented. In legislative matters, it is not always a question of what we want, so much as of what we can get, with a vicious lobby against us. I think we should all assist as much as possible and co-operate with the Board of Medical Examiners in administering the provisions of this new law.

A National Board of Medical Examiners has been organized, but of course can not in any way interfere with the state boards. It is hoped, however, that it may prevent the embarrassments that occur to many practitioners who wish to change their locations on account of ill health, or for other reasons.

I think it is evident to most of us that a national board, with power to grant a license to practice in any state, is most desirable, but as yet it has not been attainable. I think most of the state boards would recognize the licentiates of the National Board, as having at least added to the strength of their credentials, which they might wish to present to another state later in life, in view of the fact that it is the aim of the National Board to improve the existing condition, and provided the examination was equal to that of the states that have been most exacting in their examinations. I believe this is a step in the right direction, and should be encouraged, and that if the effect is beneficial, it would ultimately result in the establishment of a National Board by the government.

A few suggestions may now be in order regarding our individual responsibilities and duties in the future. We can each work in different ways. Some have minds so trained that they can be future leaders in the scientific work of the profession. Others can contribute by using their influence for the uplift of the profession and to increase our membership, for the medical society, next to books and journals, is our best post-graduate educator. It is a surprise and a lamentable fact that there are so many in our ranks that do not appreciate the value of the medical society. I do not mean that this indifference is confined to our state, for it exists throughout the country.

We hear a great deal today about commercialism in the profession, of fee-splitting, of unnecessary surgery, and other blots upon the profession. In fact a national society has recently been organized to elevate and dignify the calling of surgery, and to do all in its power to prohibit these mercenary tendencies.

I cannot do better than to quote from the inaugural address of the President, Dr. J. M. L. Finney, delivered in Chicago in 1913: "But in order that the American College of Surgeons may fulfill its highest destiny, it is essential that its standards should ever be high, its aims lofty. There is no compromise with the force of evil, nor can there ever be. To hesitate or waver in its steadfast purpose to accomplish certain much-needed reforms, is to lose irretrievably its vantage ground. Upon those of us to whom has been entrusted the laying of the foundation of the College, a great responsibility devolves. We must set the pace, we must sound the key-note in this campaign of professional righteousness. What shall it be? There can be but one answer, unless one's ideals are of the highest, one's efforts in this direction are foredoomed to failure. Character and efficiency of service are our battle-cry. They are the principles fundamental to our cause. Yes, character, that which makes a man what he is, that which lifts him above the common herd, that which stamps his work as extraordinary, must ever be a sine qua non for membership in this College."

It is a great satisfaction to know that the membership of this College is composed of the most worthy and prominent surgeons of this country, and that the demand for admission is constantly increasing.

Our responsibilities and duties as members of the State Society of Colorado are equally important, and we should maintain equally high and honorable standards. Let our aim then be to educate the public up to the idea that there is a difference between an honest conscientious physician and the purely commercial practitioner or the charlatan.

I know of nothing that will contribute more to the uplift of the profession and to counteract these debasing tendencies than the development of character and education.

There has been a demand for several years in this state, as throughout the United States, for fewer medical schools. We may congratulate ourselves that the schools are consolidated in Colorado, and represent a department of the State University. And with further reorganization in the near future, this consolidation will reflect credit upon the profession and will no doubt be an important factor in raising the standard of medical education, and also the ethics, morals, and character of the profession.

We are also to be congratulated on the wonderful growth of our medical library, conducted by the Denver County Society. There are many volumes of books in this library credited to the State Society and always accessible to its members. The interest and assistance, therefore, of the State Society should be encouraged, and continued by further appropriations, thus increasing the usefulness of the library to all the physicians of Colorado.

Osler once said when visiting the Boston Medical Library, "A library, after all, is a great catalyser, accelerating the nutrition and rate of progress in a profession, and I am sure you will find yourselves the better for the sacrifices you have made in securing this home for your books, this workshop for your members".

On an occasion of this kind one can only briefly refer to these subjects, yet I wish to emphasize their importance. To maintain a high standard and to continue our progress, we must work in harmony and conserve most carefully the interests of the medical society. In this way only will jealousies and misunderstandings disappear, and the medical profession will present a united front and will command the respect and recognition it deserves, and its usefulness and labors and integrity of motives will come to be more thoroughly acknowledged and appreciated.

The Surgeon General of the U. S. War Department is desirous of increasing the strength and importance of the Medical Reserve Corps and wishes to bring to the attention of physicians and surgeons in civil practice, and especially of young men who are completing their hospital training, the advisability of applying for a commission in the Medical Reserve Corps. In case of a national crisis it is expected that anyone so commissioned would accept active service upon receipt of proper notice that his services are needed.

ANATOMICAL CONSIDERATION OF TUMORS OF THE BRAIN WITH SPECIAL REFERENCE TO THE GLIOMATA.*

W. T. COUNCILMAN, M.D., HARVARD MEDICAL SCHOOL, BOSTON, MASS.

The attempt to present to you this evening some general considerations of tumors of the brain is not only a most difficult but a rash undertaking. It were far easier to attempt to present in the same time and manner the entire subject of the tumors which lie outside of the brain. The very marked differences which tumors of the brain present in comparison with tumors elsewhere are due to the character of the tissue in which they develop, and to their situation.

A very brief review of the character and relations of the material and the situation is essential to an understanding of the subject. The brain and the enclosing membranes appertaining to it lie within an unyielding bony box. On the inside of the box is the dense, firm, fibrous membrane of the dura which forms the internal periosteum of the skull. From this, membranes of the same dense material, and all firmly joined together, extend between the two great masses of the cerebrum and between these and the cerebellum. The membrane is penetrated by the entering arteries, by the outgoing vessels and nerves, and in numerous places by the villus-like prolongations of the internal membrane which pass through it to enter the veins.

Within the dura is a potential, probably never more than a capillary space, which on either side is lined by a single layer of flat cells, this forming the arachnoid. The immediate investment of the brain is formed by the pia mater which follows all the elevations and depressions and encloses the nutritive vessels in a delicate connective tissue reticulum. Within the meshes of this tissue there is always a varying amount of fluid, and changes in the volume of the brain are compensated for in great part by changes in the amount of this enmeshed fluid.

Within the interior of the brain are the connected spaces of the ventricles, which contain a fluid secreted by a pair of gland-like structures, the choroid plexuses. This fluid passing out through openings communicating with the meshwork of spaces in the pia, forms the bulk of the fluid contained in this. The choroid plexus has all the characteristics of a gland with a secreting epithelial surface resting on a thin membrana propria which separates it from the vessels beneath. It closely resembles in structure the glomerulus of the kidney.

The circulation and nutrition of the brain are still obscure. Compared with such structures as the muscles and secreting glands, it is feebly vascular. The vessels ramify in the pia mater and send branches into the brain substance which break up into fine capillaries. All vessels, arteries, capillaries and veins are surrounded by small perivascular spaces which communicate with the pial spaces and do not belong to the lymphatic system. There are a few small spaces around the large vessels of entry and exit, and around and within the nerves, which communicate with the external lymphatic system, but of lymph outflow in the ordinary sense there is none. The fluid secreted by the choroid plexus mingles with the transudate from the vessels, and practically the sole discharge of extra-vascular fluid is by means of the arachnoid villi, which secrete into the sinuses and into the veins of the diploë.

As to the structure of the brain itself, the complexity comes chiefly in the effort to relate structure with function; in its mere anatomical details it is not a very complex structure. For our purpose here we may consider the central nervous system primarily as a mass of tissue which holds a large amount of fluid in its substances. It comprises the essential nervous tissue, the nerve cells with dendrites, axons, and neurofibrils, associated with them, and an enormous mass of medullated nerve fibres. All of these elements lie enclosed in the neuroglia which to a certain extent plays the same rôle here as does the connective tissue in the body elsewhere. The neuroglia according to the most recent studies forms a connected reticular mass or syncytium, with nuclei more or less regularly distributed and occurring chiefly at the nodal points. The nuclei differ greatly in their number and relations in different parts of the brain and are relatively more numerous in the child than in the adult. Around these nuclei it is difficult or impossible to distinguish any cytoplasm in the ordinary sense of the word. There are fibrils belonging to the neuroglia embedded in the syncytium which are in close relation to the nuclei. The fibrils are extremely small and have a chemical composition which enables their recognition by differential staining. When the normal brain tissue is examined fresh it is not possible to see them or at least to distinguish them from other structures. When, however, they are increased in size and numbers as in sclerotic processes and in tumors, they are readily seen. We owe the first definite recognition of this tissue to Virchow, and to Weigert; the latter more clearly described it and discovered methods of staining by means of which the fibrils were differentiated. The fibrils in the reticulum form a fine network which is increased and condensed on all surfaces. The neuroglia-nuclei appear also in other places, as in the apparent spaces around the nerve cells, forming the satellite or trabant cells, and may be found to some extent in the perivascular spaces. The structure of the neuroglia is more evident in the tumors composed of it, for here other tissues which add so much to the complexity are not present. The surfaces of the brain are extensive. As such we must regard not only the external surface of the convolutions, the internal surface given by the ventricles, but also the enormous surface given by the perivascular spaces which communicate with the other surfaces. These perivascular spaces are often crossed by neuroglia fibrils which passing from the brain tissue are embedded in the walls of the vessels. What extravascular channels for fluid transmission there are, and what is the exact physical structure of the tissue is uncertain, but it seems that fluid containing salts in solution may pass from the perivascular spaces into the spaces around the nerve cells.

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*Address delivered at the annual meeting of the Colorado State Medical Society, October 5, 6, and 7, 1915.

Such a structure of the tissue, a connected mass of cells and fibres embedded in a meshwork of cells, protoplasm and fibrils, holding in its substance and in close association with it a large amount of fluid, has given to it certain physical characteristics. The tissue is not easily penetrated by cells; the polynuclear leucocytes in foci of suppuration do not so readily infiltrate as in other tissues. Red blood corpuscles from small hemorrhages fill and dilate the perivascular spaces, but do not penetrate the tissue unless this has undergone some pathological alteration. It may, however, be penetrated by small freely moving parasites such as trypanosomes and spirochetae. The tissue possesses great facility for fluid absorption, and edema of various degrees both focal, following injury of whatever nature, and general due to circulatory disturbances, easily arises. The neuroglia has great power of proliferation, this depending upon the nature of the stimulus which excites it. In the repair of injury there is a coordinating activity between the neuroglia and connective tissue formation coming from the tissue of the walls of the vessels. Foci of destruction of brain due to vascular obstruction become surrounded by a wall of neuroglia; the wall of an abscess on the other hand, is formed by an inner lining of granulation tissue and outside of this a more or less firm capsule of neuroglia. In the vicinity of tuberculous foci, whether a meningeal tuberculosis or solitary tubercles in the brain substance, there is always an increase of neuroglia which often extends far beyond the immediate lesion. The metastatic tumors of the brain produce but little reaction in the neuroglia in their immediate vicinity, nor is there any reaction around parasitic cysts. The lesions due to syphilis vary enormously in their character and while the diffuse lesions are chiefly characterized by neuroglia proliferation the circumscribed gummata produce relatively less than the tubercles.

The blood vessels of the brain differ from the vessels in other parts of the body by the thinness of their walls and by the absence of an adventitia. There is not the intimate relation between vessels and tissue which is seen elsewhere; vessels of considerable size are formed by an endothelial tube outside of which there is a connective tissue membrane in which it is impossible to distinguish cells belonging to it. The endothelial cells proliferate easily and form collagenous intercellular substance.

In the normal brain there is no connective tissue save that associated with the vessels, and although this may under circumstances proliferate rapidly and even form a considerable amount of the tissue of other tumors, the part it plays in pathological conditions is insignificant.

The brain tissue being a mass of soft material enclosed in an unyielding box, any diminution of the space enclosing it, whether by actual tumor formation or exudate, must produce increased pressure, and of all the clinical phenomena of brain tumor those due to increased pressure are the most prominent. How prominent these symptoms are, depends upon the rapidity with which the pressure rises, and upon the place at which it is applied. Very slowly growing tumors may reach considerable size before the pressure phenomena become apparent. The skull yields to a certain degree, particularly in children, by separation of the sutures, by thinning of the bone and probably there is some actual enlargement by growth. There may also be some enlargement by diminution of the size of the sinuses, compensated by a greater rapidity of the blood flow in them, and there may be also some reduction in the amount of cerebrospinal and tissue fluid, although on this point there are no accurate data. Tumors of the cerebellum beneath the dense tentorium produce relatively greater pressure than tumors of the cerebrum. The effects of pressure are both general and local, this of course depending greatly on the situation of the tumor and also on its character. The tissue as a whole is capable of great deformity with but little effect on function, the most conspicuous example of this being found in congenital hydrocephalus in which the entire mass of the brain forms a thin shell around the enormous space of the ventricles, and here there may be no impairment of function. One of the most common conditions associated with pressure is the formation of small herniations of the brain tissue, the herniae passing out of the openings of the dura with the Pacchionian granulations. In such herniae, from one to several millimeters in diameter, seemingly normal ganglion cells and myelin fibrils and neuroglia are found. Portions of the cerebellum may be driven as a cone into the foramen magnum and when relief of tumor pressure is given by a decompression operation the whole brain may become deformed by the protrusion in the area of the operation. A tumor pressing upon the medulla or pons may produce great deformity of this with diminution in size and without interruption of the nerve tracts. This is possible by the displacement of the tissue fluid. A large cavity in the cortex produced by a meningeal tumor pressing upon it is rapidly refilled when the tumor is removed. Local pressure acts more by pressing tissue aside and condensing it by displacement of fluid than by destruction, and after removal of pressure the normal relations are rapidly reproduced.

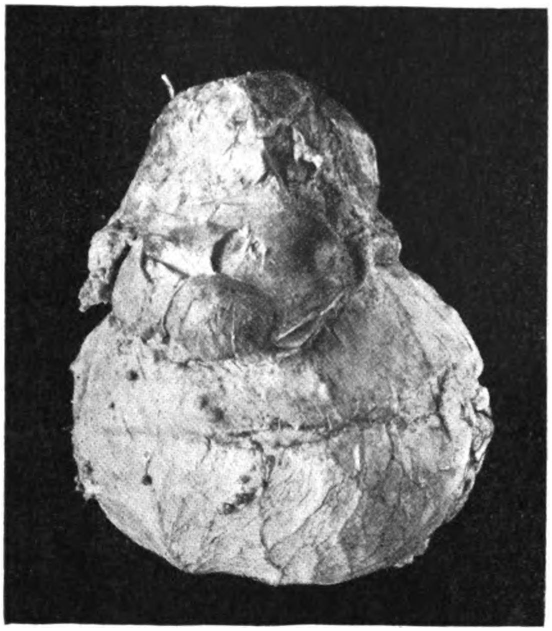

Fig. 1—Large glioma of brain extending through the area of decompression. Dural surface shows numerous polypoid herniations of the brain, these occurring at the site of the Pacchionian villi.

To the effects of pressure due to the increase of mass are usually added the effect of the increased amount of cerebrospinal fluid. Dilatation of the ventricles of the brain is one of the most common conditions associated with brain tumors, the degree depending largely upon the situation of the tumor. It is most marked in those tumors which by their situation inhibit the outflow from the ventricles, just as in a meningitis the escape may be hindered by the presence of an organized exudate at the exit. The ventricular dilatation is, however, so common a phenomenon that it seems impossible to regard it as due alone to interference with the outlet from the ventricles. It is easy to see how tumors of the cerebellum or in this vicinity can accomplish this either by their presence or the local pressure they exert on adjacent tissues. But the same condition, though in less marked degree, can be brought about by rapidly growing tumors situated elsewhere. Nor does it seem possible to explain the very common coincidence between meningitis, particularly tuberculous, and ventricular dilatation by interference with the outlet combined with pressure on the veins of Galen. The fluid within the ventricles and the cerebrospinal fluid is produced as a secretion of the choroid plexus. The output of this fluid is accomplished by the villi of the Pacchionian granulations which extend into the sinuses and are covered only by a thin layer of endothelial cells. Any interference with the activity of the villi acting by compression of the vessels by an exudate, or herniation of the brain tissue around them will lead to accumulation of fluid in the ventricles. The general pressure exerted by a tumor may have the same effect acting either by compression of the thin-walled vessels or possibly by greater or less degree of distortion or displacement of the brain, thereby constricting the villi at their exit through the dura. A very careful detailed study by Fuchs of the dura in cases of internal hydrocephalus has shown atrophy both of the dura itself and of the villi. That the hydrocephalus in these cases is internal and not external is understandable. The fluid is produced within the ventricles and the interference with exit is over the wide external area, and the primary effect of an increased amount is to render difficult the passage from the ventricles into the pial spaces from which it is discharged. About the only cases of external hydrocephalus are those in which there is increased fluid accumulation following atrophy, the edema ex vacuo. Cerebral pressure is of prime importance in any consideration of brain tumors for the most prominent and in certain cases almost the only symptoms are due to this.

This paper is based on the study of 115 cases of brain tumor seen in the Peter Bent Brigham Hospital in 1913 and 1914. The material is from the clinic of Dr. Cushing, whose assistance in the study by stimulus, suggestion and information, has been most valuable. I have included under the term tumor all those conditions outside of trauma, hemorrhage and acute diffuse inflammation which lead to the formation of an excess of material within the cranial cavity and which give rise to all or some of the symptoms of tumor. It includes not only those tumors which arise within the brain tissue, but also those which arising from tissue outside of the brain but within the skull, by their growth extend into or compress the brain.

Three of the cases were abscess of the brain. These may run a very chronic course and give all the symptoms of tumor. particularly as those symptoms which are usually associated with abscess elsewhere, such as leucocytosis and fever, are commonly absent. It is difficult to understand the reason for this, but it may be due to the lack of lymphatic absorption which prevents the entry of toxic products into the blood. In one of the cases, a large abscess in the temporal lobe, there was extreme flattening of the convolutions from pressure. The pressure is due not only to the abscess itself but to the edema of the surrounding brain tissue. However injury of the brain tissue is produced, whether by trauma by hemorrhage or by infection, the primary reaction is an alteration of the relations of the tissue fluid, the injured tissue swelling by fluid absorption. The metastatic abscesses, in contradistinction from those due to trauma or those extending into the brain by continuity with a primary focus as from the ear and nose, are most apt to be confused clinically with tumors. The metastatic abscesses seem to show a definite relation to lung abscess, particularly to those associated with bronchiectases and many pathologists have called attention to such relation.

One of our cases, a large chronic abscess in the temporal lobe, was typical of this. There was bronchiectasis and abscess of the lung in connection with a foreign body, a pin, which from the history must have lodged in the lung several years previously. Another case of similar chronicity and also in the temporal lobe was secondary to infection of the nose, and the third case followed infection of a broken clavicle. The metastatic abscesses like emboli are rather more common on the left than on the right side of the brain and in the area of distribution of the Sylvian artery.

But three of the 115 cases were metastatic tumors, a rather small proportion when compared with statistics derived from autopsy material alone. One of these was secondary to a primary carcinoma of the lungs proceeding from the bronchial glands, in one there was a primary carcinoma of the stomach and in one the primary tumor was a melanotic sarcoma of the skin. All the metastases were multiple and in two cases had produced the symptoms of brain tumor. In general, brain metastases are more than twice as common secondary to sarcoma as to carcinoma. The same relation to the lungs is seen as in abscess, the metastases follow very commonly the primary carcinoma of the lungs. The case of metastatic sarcoma was particularly interesting. The symptoms pointed to a tumor in the motor cortex and at the operation a small melanotic sarcoma in this region was located and removed. Further investigation showed that a small, bean-sized, subcutaneous tumor of the thorax to which little attention was paid in the general examination was the primary growth. At autopsy a number of additional tumors of the brain and elsewhere were found. In addition to the case of metastasis following lung tumor in this series, five cases of lung tumor from outside were examined in the laboratory and in four of these there were multiple metastases in the brain. The metastatic tumors in certain cases enlarge by destroying and replacing the surrounding tissue, in others the tissue is pushed aside by the growing tumor. There is usually but little reactive growth of the surrounding neuroglia.

Tuberculosis of the brain has especial relation to the tumors. Elsewhere in the body tuberculosis, save in the unusual types of the disease in the lymph nodes, but rarely appears in the tumor form. In the cerebral tissue the disease takes the form of distinct circumscribed nodules which may reach the size of a walnut; they are multiple or single and have little tendency to central softening. They present such differences from tuberculosis elsewhere that before the identity of the disease was established they were given a special designation. They are commonly associated with a chronic form of meningeal tuberculosis which may be the primary or secondary affection. Tuberculosis of the lungs in some degree is always present. The disease is twice as common in the cerebellum as elsewhere in the brain. The solitary tubercles take the form of hard white masses, round or irregular, and surrounded by a zone of more active tissue in which miliary points of caseation can be distinguished. The nodule increases in size by the formation of miliary foci immediately around it which become included in the central caseous mass. They are always accompanied by a marked reactive growth of the neuroglia. They always produce destruction of the tissue which is invaded and a large tubercle in one lobe of the cerebellum may produce but little enlargement. The pressure symptoms seem to me to be due more to the accompanying meningitis than to the presence of the nodule or nodules. In the series there were seven cases of tubercles, four in the cerebellum, one in the pons, and two in the cerebrum.

With the infections in the wide sense which may give rise to tumor symptoms must also be considered the animal parasites, particularly the cysticercus, the cystic stage of the taenia solium. This appears in the form of single or multiple cysts which may reach the size of a lemon, and which are seated more generally in the cerebrum. The cyst has the characteristic hyaline laminated wall and clear fluid contents, in which careful search will usually reveal hooklets. The cyst produces no reaction in the surrounding brain tissue, and does not destroy the brain tissue save by the pressure it exerts.

In a favorable operation the unbroken cyst as a foreign body can be plucked from the space in which it lies. There was one such case in the series, in which two cysts were removed by operation and at the autopsy several weeks later three additional cysts were found in the brain, and also one in the left auricle of the heart.

The numerous forms of syphilis of the brain do not generally give rise to the symptoms of tumor, especially the pressure symptoms, save in the form of the gumma. Unlike the tubercle this is more generally situated in the cerebrum and may occur independently or as an extension from a gummatous meningitis. It is never circumscribed as is the tubercle, and extends diffusely into the surrounding tissue. Like the tubercle it infiltrates and destroys the tissue in which it develops, and usually the brain shows elsewhere lesions of the disease. There were two such cases in the series. In one a gumma of walnut size was found at the base of the temporal lobe extending into the pons, and there were numerous fresh gummata of the liver. In the other a small superficial gumma in the motor region was found on operation, and the patient fully recovered.

Of the tumors in a strict sense there must also be considered those which arise not in the brain but in the glandular organs connected with it and of these the most important is the struma of the hypophysis. The work which Dr. Cushing has done on the physiology and pathology of this organ has led to a pilgrimage of these cases to the Brigham Hospital, and the operative material is abundant. The tumors may or may not extend from the pituitary gland into the brain and give rise to the symptoms of brain tumor in addition to those pertaining to the increase or loss of the function of the gland. There were 23 cases of pituitary tumor and in two, both typical acromegalics, there was a large extension of the tumor into the brain.

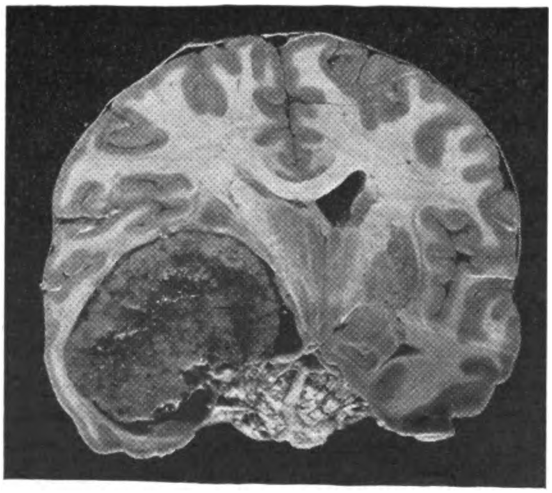

Fig. 2—From case of acromegaly in which a struma arising in hypophysis extended into the temporal lobe.

There was one tumor of the pineal gland. In this case with symptoms of early sexual maturity, with early secondary sexual characteristics, indicative of disease of the organ, an epithelial tumor 5 cm. in its longest diameter occupied the situation of the gland and several isolated small nodules had been formed by implantation on the inner surface of the ventricles.

An interesting class of tumors are those arising from tissues which have become displaced in the course of embryonic development or from parts of tissue which persist as undifferentiated remnants. These are most common at the base of the brain in the region of the hypophysis and may appear as tumors of this. Here they arise from remains of the pharyngeal epithelium from which the hypophysis develops. They may form solid tumors or cysts, though even the solid tumors are microscopically cystic, and they are all epithelial in character. There were three of such tumors. The tumors

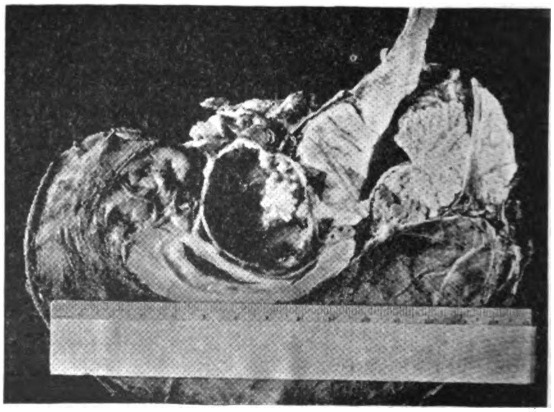

Fig. 3—Mesial section of brain showing an interpeduncular epidermoid cystic tumor. The cyst is lined with stratified epithelium, and from the inner wall project papillary masses of epithelial growth. The small solid mass beneath the cyst is the pituitary body.

are of the nature of benign tumors, being circumscribed, extending by expansion only, and do not produce metastases, but are malignant from their position. It seems particularly unfortunate that a tumor which in its nature is a little more than a dermoid cyst and elsewhere could be as easily removed should have in the brain a situation which renders its surgical removal practically impossible.

An important class of tumors are those arising from the meninges and which usually affect the brain by compression, having no organic connection with it. The endothelioma forms the type of these tumors. It arises from the dura or the pia mater, more generally from the former. The dural endotheliomata have a wide base of attachment and a smooth round or nodular surface, and press upon the pia and brain, displacing it. They are usually of slow growth and of the tumors within the skull offer the most favorable opportunity for complete removal with recovery. A favorable situation of the tumors is along the falx. The essential tissue forming the tumors, and the tissue of origin, is endothelium. The tissue arising from this has a peculiar non-fibrillar intercellular substance, the nuclei are spindle-shaped, often forming peculiar whorls around a center, and one of the common characteristics consists in the presence of concentric calcareous masses, the sand bodies, which led Virchow to give these tumors the name of psammoma. They rarely show any nuclear figures or other evidences of rapid growth. From such a typical tumor there may be many variations given by the presence of connective tissue in variable amount and by the greater abundance of cells. In certain of them the nuclei are so abundant and depart so markedly from the typical long, spindle-shape that the histological picture simulates the sarcoma. Those arising from the pia (or arachnoid?) have a much closer relation to the brain, and are often inseparable from this and may have an admixture of glia fibrils which does not belong to the tumor proper but extends into the tumor from the brain. The base of attachment to the membranes in certain cases may be very small. A special type of these tumors is given in those situated in the cerebellar pontine angle. There were fourteen endotheliomas in the list, of which five were above the tentorium, three in the spinal cord, one on the lower surface of the cerebellum, and three in the cerebellar pontine angle.

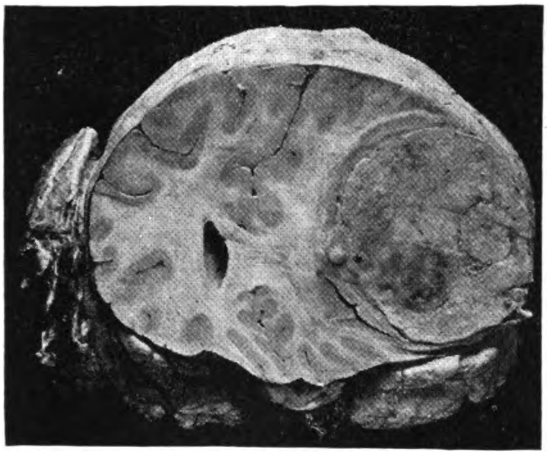

Fig. 4—Endothelioma of the dura extending into the brain. Note the sharp line separating the tumor from the brain tissues, and the cortex everywhere beneath tumor.

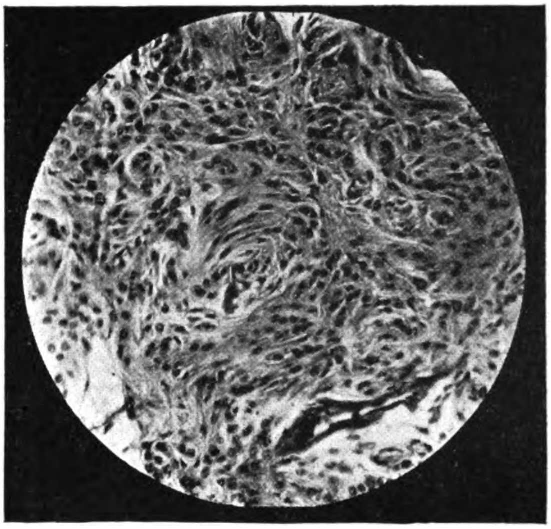

Fig. 5—Microscopic structure of the tumor shown in Fig. 4.

By far the most numerous and most interesting of all this class of tumors is the glioma. This constitutes the only tumor proper which arises from the essential tissue of the brain. The neuroglia, like the nerve cells and the ependyma of the ventricles is in its origin an epithelial tissue, and is distinguished among such tissues by the production of a fibrillar intercellular substance. It is by far the most common of the tumors that affect the brain. Compared with the tumors affecting the body generally it has the closest analogy with those arising from the connective tissue as the fibroma and sarcoma, but it has many characteristics which place it in a class by itself. Like the connective tissue tumors the gliomata present wide differences in structure, in cell characters, in their relation to surrounding tissues, in their vascularity, and in the accompanying degenerations.

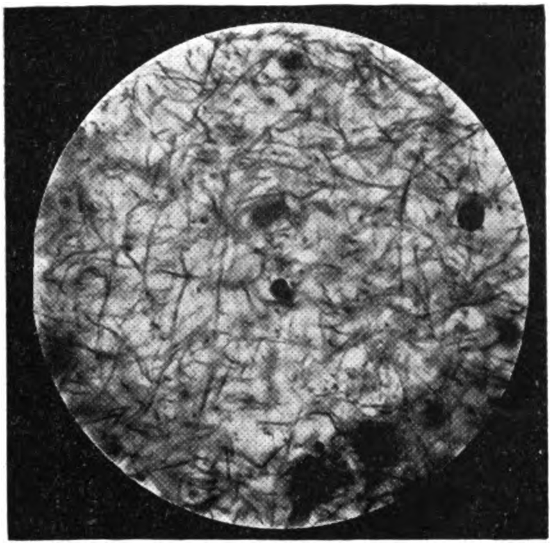

Fig. 6—Section of a glioma of the cortex showing the neuroglia fibrils, and their relation to the cells. The tumor was soft, of an almost gelatinous consistency, as is evident from the looseness of its structure. In places the fibrils seem to branch, but they do not actually do so.

So great is this variation even in different parts of the same tumor that it is difficult to give a classification which will serve even a convenient purpose. Probably the most striking common characteristic is the mode of growth, which is by infiltration and not by expansion; the glioma in its advance grows into the tissue, gradually replacing it and not pushing it aside. The architectural form of the tissue which is displaced may be perfectly preserved, for instance, a glioma of the cerebellum which has approached the surface may show the same interdigitations as the cerebellar cortex and sulci on the surface when it develops in the cerebrum. This condition renders it impossible to determine the limits of the tumor with the naked eye or with the microscope. The growth of the tumor is accompanied or preceded by a growth of the normal neuroglia which is very diffuse and is often seen far beyond the main mass of the tumor, making it impossible, even histologically, to sharply determine its boundaries. There is no other condition which produces such an extensive diffuse gliosis as does the glioma. This gliosis is not secondary to injury of tissue produced by pressure, for in other conditions of pressure due to intracranial tumors it does not take place, or at least not to the same extent.

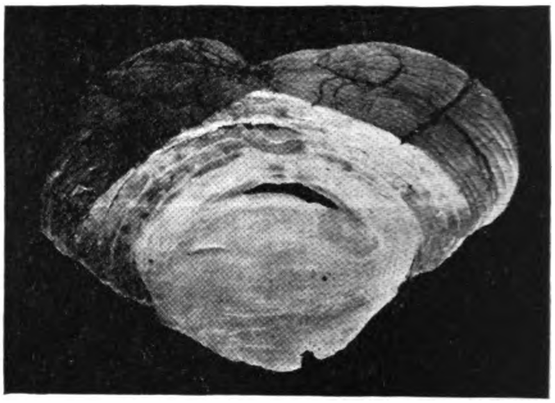

Fig. 7—Section through a diffuse glioma of the pons. Observe the notch on the lower section of the tumor where it has almost grown around the basilar artery. Notwithstanding that the tissue of the pons is seemingly displaced by the tumor there was no paralysis, the nerve fibres passing through the tumor.

The infiltrative character of the glioma is so marked in certain cases that the term diffuse glioma has been used to distinguish

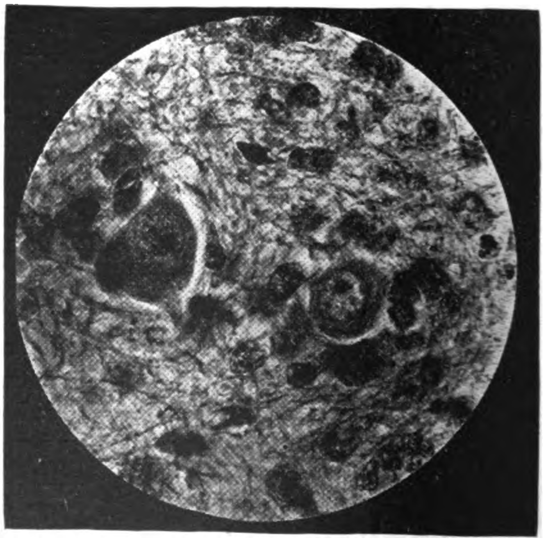

Fig. 8—Ganglion cells in the pons surrounded by the infiltrating tumor.

them, but diffuseness of growth is a property common to all but not appearing in all to the same degree. As the growth extends it gradually produces destruction of the tissue it infiltrates. The destruction affects the tissue elements in different degree. The ganglion cells are the least resistant, the myelinated fibres belonging to them disappear, but unimpaired nerve tracts may be found in the interior of what appears to be solid tumor tissue. This makes it possible to understand the absence of complete paralysis where a central glioma seems to have involved the internal capsule. The disappearance of the ganglion cells is brought about by atrophy and degeneration, due probably to pressure and lack of nutrition, and also to the conversion of the neuroglia cells in their vicinity into phagocytes which seem actually to devour the nerve cells. The macroscopic appearance of the gliomata varies widely. In some there is but little difference from the appearance of the brain-tissue save in the absence of the normal markings. As a rule they have not the opacity of other tumors for there is not the same tendency to fatty degeneration. They are not as a rule very vascular, the vessels are large and thin-walled, and hemorrhages from these may take place and to such a degree as to produce a fatal termination, with the suddenness of an apoplexy. The consistency also varies and as a rule the tumor is denser than the surrounding tissue; but the opposite of this may be the case and the tumor is translucent and of myxomatous appearance.

Another characteristic of the glioma is the tendency to cyst formation; the cysts differ from the cysts in other tumors which result from the accumulation of products of epithelial activity or represent the remains of areas of degeneration. The cysts in the glioma have a different origin and are due to fluid absorption by the tissue. In certain cases there is a single cyst with comparatively dense walls which make possible the extirpation of the whole, but even in these cases it is impossible to be certain that the growth does not extend diffusely beyond the apparent limits. In other cases there is not a single cyst but great numbers of small

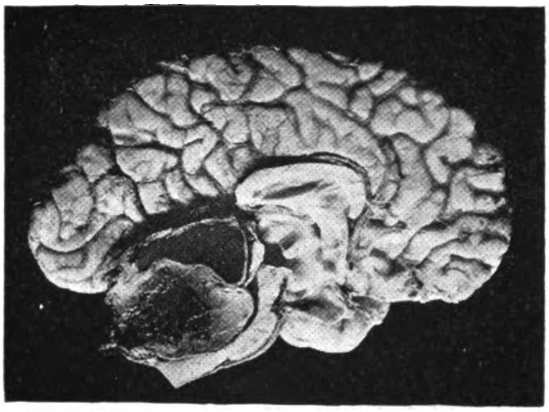

Fig. 9—Cystic glioma of pons. This tumor, several times operated upon, had destroyed the greater part of the cerebellum. Observe the definite cyst in upper part of the tumor and the cystic area in lower and more solid portion. Observe also the compression of pons and medulla and the great dilatation of the third ventricle.

cystic spaces everywhere. In the central gliomata small spaces lined with ependymal cells may appear but such spaces do not produce the larger cysts, which seem to be merely spaces in the tumor tissue representing an accentuation of the small and microscopic cystic spaces. The fluid in these cysts is characteristic; it is a thin transparent watery fluid with a slight yellowish tinge which serves to differentiate it from the perfectly clear ventricular fluid. The gliomata with large cysts are more common in the cerebellum and in the temporal lobe of the cerebrum.

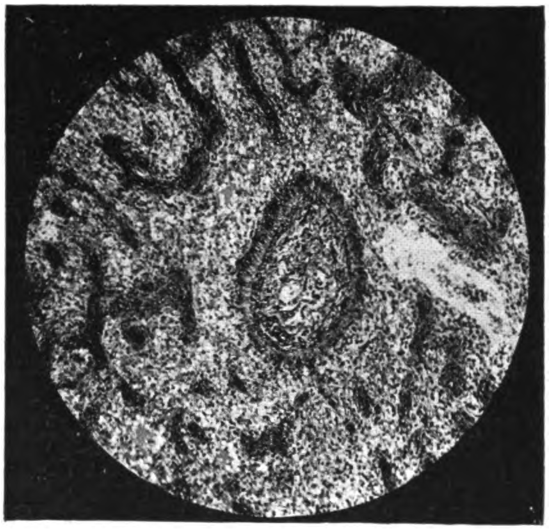

Fig. 10—Low power section of same tumor. Observe in this the small spaces filled with coagulum.

A third peculiarity of the glioma is the limitation of the tumor to the tissue of origin. It is remarkable to see the tumor growth involving the cortex over a large area and entirely supplanting this, but in no place breaking into the meninges. But there are exceptions to this, and the tumor may in various places break through the cortex forming polypoid projections of tumor tissue which extends into the meninges. In certain of the very cellular gliomata in which the cells have acquired the capacity of independent growth the tumor may extend along the entire cerebro-spinal space, but such cases are very rare, and the tumors comparable to the cellular sarcomas. There was one such case in the series. It is difficult to explain the absence of metastasis in such cases, for the conditions favoring metastasis, consisting in the abundance and loose relations of cells with each other and great capacity for growth, are present. Moreover the cells may find conditions favorable for growth in the tissue outside. In one of the cases of the series a temporal decompression had been made and the mass of tumor had extended from the cranial vault into the temporal muscle, invading and destroying this just as would a sarcoma. One explanation of the absence of metastasis, is that in the absence of lymphatics there is no way for the tumor cells to get into the lymphatic circulation and the tumor does not tend to invade the blood vessels, although in one case actual tumor thrombi were found in the adjacent veins.

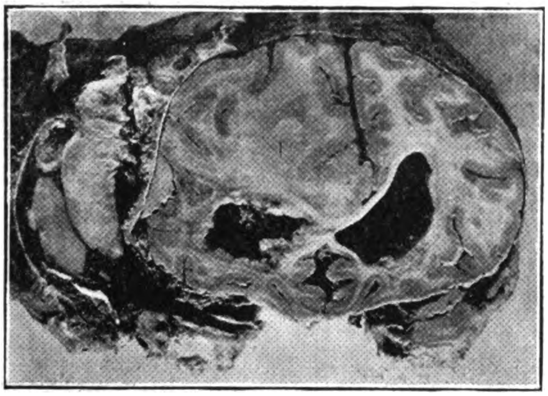

Fig. 11—Section through a large glioma of the cortex which had extended through the area of decompression. The section passes just posterior to the area and shows masses of the tumor growing in contact with the temporal muscle. Observe the greatly dilated lateral ventricles, the surfaces being covered by polypoid masses of the tumor.

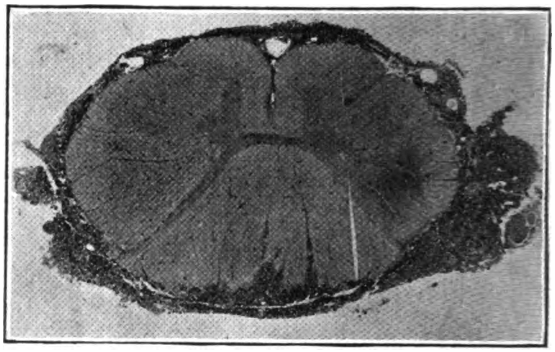

Fig. 12—Section of cervical cord from same case, showing the tumor surrounding the cord and in places extending into it. Observe the extension is along the lines of the entering vessels.

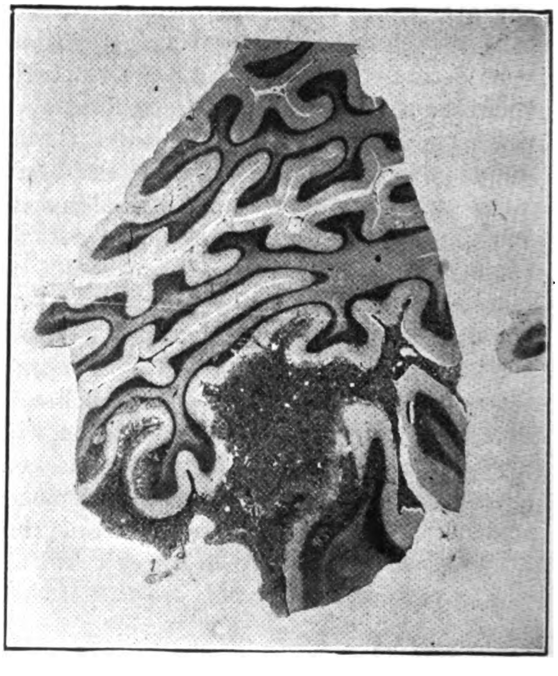

Fig. 13—A section of the cerebellum in the same case showing the extension of the tumor into this. In places it has entirely supplanted the cortical layer.

Another characteristic of the glioma is the tendency of the tumor to extend along surfaces. One may see long lines of extension of the growth either on the surface of the brain or in a sulcus and connected with the tumor at a single point. In one case of the series in a child of thirteen, a glioma originating in the pons grew over this in a mass much resembling a mass of plaster poured over the surface. In another case not in this series a glioma of the cerebellar cortex extended over the surface of this and along the entire length of the cord. The tumor grew rapidly, caused excruciating pain, and the unfortunate patient, a young married woman, gave birth to a healthy child a few days before death.

The most common histological type of the tumor is given by the normal structure of the neuroglia variously modified, as all normal structures are, in the tumor growth. The syncytial character of the tissue is often more evident than in the normal. The abundance of cells and the relations between cells and fibrils vary enormously. In the gliomas as in the connective tissue tumors there is every gradation from tumors almost composed of cells to those in which intercellular substances are predominant. The neuroglia fibrils may form a thick network of fine fibrils between the cells, sometimes forming spirals, or they may be so few as to be demonstrated with difficulty. They may be extremely fine or coarse and irregular, but I have never seen a case in which it was not possible to demonstrate them in some part of the tumor. All types of cells may be found, from nuclei at the nodal points of the syncytial reticulum, to large cells with abundant differentiated cytoplasm. The peculiar types of neuroglia cells, the large spider cells which are never present in normal neuroglia, may be abundantly present in the tumors, and chiefly in the tissue around them which is being transformed into tumor. These are cells, often very large, with numerous extended branching processes along which fibrils extend. Another cell type often seen has an eccentric nucleus and a large amount of finely granular cytoplasm. Cell forms often vary greatly in different areas of the tumor, and often after partial extirpation the new growth may present a totally different picture.

Cell proliferation is more common by the various methods of direct division than by mitoses, and when the syncytial character of the tissue is retained it seems to be the only method. Mitoses certainly occur in multiplying neuroglia cells which have become differentiated and separated from their immediate connection with the reticulum. Such mitoses were first observed and described by the author in the cortical changes which accompany the meningitis produced by the meningococcus, and may be found in great perfection in the cellular and rapidly growing gliomata. Direct division may take place by simple fission or budding or by a more complicated method. In the cellular gliomata large homogeneous cells with separated chromatin masses often arranged in a manner simulating mitoses are not unfrequently found. They seem to result from a simple fragmentation of the nucleus, they vary in size and are connected with the threads of the spindle. One, two, or several centrosomes, the latter often arranged in a circle, are found in these cells. From these chromatin masses nuclei develop which vary in size and which retain for some time their connection with the threads of the spindle. In certain cases large giant cells with numbers of nuclei of the most irregular form and size and with great numbers of centrosomes may result from direct nuclear division. In the more regular form of direct division the new nuclei which are formed, separate and take their place in the syncytial mass.

The gliomata also seem to present a great difference in regard to origin and mode of growth in comparison with other tumors. It is in general held that tumors are unicentric; that they originate in a single area, whether this be a focus of embryonic tissue which has remained undifferentiated, or a focus of normal tissue which has taken on the characteristics of the tumor growth. The further development and growth of the tumor is due to the extension of this primary tumor tissue and not to the transformation of other tissue into that of the tumor. Further it is assumed that the growth may be continuous or discontinuous, in the latter case due to cells of the tumor wandering, or being carried by lymph streams, into the adjacent tissue. Although this view seems to best accord with the known facts in most instances, it is not possible to regard it as a law and experience shows the rarity of laws regulating cell growth. In the case of gliomata the unicentric theory of tumor development cannot be held. The study of the growing edge of the glioma does show the tumor cells infiltrating the surrounding tissue. The single cells pass into this seemingly by amoeboid activity and may be differentiated from normal cells by form and staining. The tumor may also extend in greater masses along the perivascular spaces. But in addition to this in all cases but particularly in the more diffuse gliomas, the advance of the tumor is preceded by a general proliferation of the neuroglia cells which become converted into the cells of the tumor and have the growth and form characteristic of these. The cells in certain cases lose their syncytial character or change into single cells with long branching processes or into the homogeneous cells with eccentric nuclei; in any case it is a different condition from the ordinary gliosis of the brain. The same condition may take place at a distance from the tumor, as is shown in the following case:

A man fifty years of age with indefinite symptoms of tumor in frontal region. At the operation the tumor was not located. Death thirty hours after operation. Section of brain after formalin injection and hardening showed a tumor, 2.2x5.2cm, seated in the frontal lobe adjoining the anterior central convolution. It was beneath the surface and chiefly around the sulcus between the first and second frontal convolutions. Fresh thrombi from the operation were found in the vessels over it and the tumor contained numerous fresh hemorrhages. The central part of the tumor was cellular with very few fibrils between the cells. The cells were extremely polymorphous, there being large giant cells, bands of spindle cells and cells of indefinite character. Most of the cells were separate, others forming part of a reticulum. The cells were growing both in the brain and in the arachnoid of the sulcus and in this had extended to the surface. Around the cellular tumor in most places there was a widemeshed, edematous reticulum. From the sulcus there extended a cap of tumor tissue, or at least of closely packed glia cells and fibrils, over the first frontal convolution almost to the longitudinal fissure. In all the surrounding cortex there was a great increase in the glia cells, especially in the trabant cells. In the pericellular spaces of the ganglion cells there were clusters of the satellite cells. In addition to these there were numbers of large branched astrocytes often in groups of two or three, and preferably about the vessels to which the cell processes were often attached. Astrocytes were also found around the ganglion cells with the protoplasm in contact, seemingly representing phagocytosis of the ganglion cells. The ganglion cells nearly all showed degeneration, represented in loss of Nissl granules, irregular and broken cell contour, swelling, loss of chromatin in the nucleus. The myelin sheath stains, however, showed these, often swollen and varicose, extending through the area of gliosis and degeneration and to some extent into the cellular portion of the tumor. Sections of the brain elsewhere showed, especially in all parts of the frontal lobe on the tumor side, an extensive gliosis chiefly subcortical and more marked at the base of the sulci, but extending also into the white matter. Throughout the area of gliosis astrocytes in great beauty were seen. The study of the relation of these cells to the fibrils showed that these extended along and in contact with the cell processes but did not pass into or terminate in the cell protoplasm. At the tip of the frontal lobe and at least 8 cm from the site of the tumor an area of cortical gliosis was found which seemed to be of the same

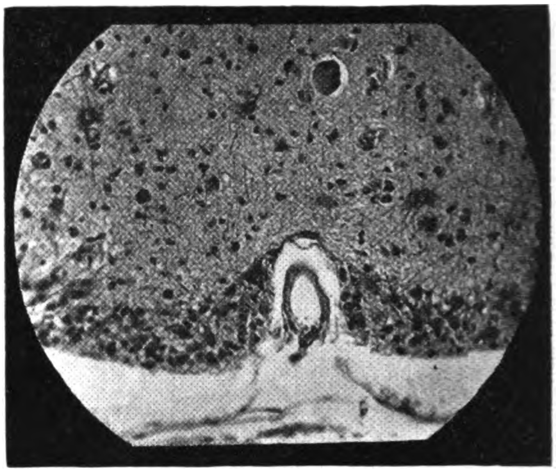

Fig. 14—To show the extension of a glioma over the surface. Observe the diffuse infiltration of the cortex with the tumor cells and a definite line of tumor extending over the surface.

character as that formed by an extension of the tumor. Posteriorly the gliosis gradually diminished and none was found in the occipital lobe. In the other hemisphere the gliosis was present but in much less degree. The case presents much similarity to the case of diffuse glioma described by Lindau in the Frankfurter Zeitschrift.

It is impossible to avoid the impression that in the tumor, or in some way associated with it, a substance is produced which stimulates the neuroglia to growth; this growth taking both the form of general gliosis and of tumor. The only changes which take place in the ganglion cells are those of atrophy and degeneration; they never take part in the formation of the tumor.

One of the most fascinating theories of tumor origin is that they develop from embryonic rests of tissue which have not undergone differentiation. This theory has also been advanced and is held in regard to the gliomas by a number of investigators. In favor of it is the occurrence of gliomas which in structure more closely approach the embryonic than the adult tissue; tumor occurrence in situations where the embryonic development has been complex; the association of gliomas with other malformations and with tumors of embryonic character elsewhere, particularly in the kidney and the heart. The rare rhabdomyoma of the heart is generally associated with tumor-like formations of the neuroglia of the brain and cord, and the rare condition of tuberous sclerosis of the brain, a process difficult to separate from the tumors, is generally accompanied by tumors of embryonic character in the kidneys.

The theory that gliomas are the effect of traumata also has its advocates, but there is no more support for the traumatic theory in the case of glioma than in other tumors. Traumas of all sorts are extraordinarily common and there is little difficulty for one who holds the theory of traumatic cause to elicit a history which would seem to bear this out. The only proof which could be given would be the experimental, and this has not been possible. The glioma and, in fact, most cerebral tumors are the prerogatives of man. No spontaneous tumors of the brain have ever been found in the laboratory animals. In the horse several cases of the so-called cholesteatoma have been reported.

The terms sarcoma and glio-sarcoma descriptive of the brain tumors have produced some confusion. It is true that gliomas almost exclusively cellular and closely resembling forms of sarcoma do occur, but in these cases careful search will usually show the presence of glia fibrils, although there is no reason why a purely cellular tumor without fibrils should not arise in the neuroglia. As has been said, there is not unfrequently associated with the glioma a growth of tissue coming from the walls of the vessels, with active cell proliferation shown by nuclear figures. Usually this growth is entirely subordinate to that of the neuroglia, but in one case of the series the vascular growth was so prominent as to form a definite part of the tumor and for such a growth there is no objection to the name of glio-sarcoma.

A word must be said concerning the very interesting so-called pseudo-tumors of the brain. The word was used by Nonne to describe those cases in which there were the prominent clinical signs of tumor, such as choked disc, headache and vomiting, often associated with indications of locality, but in which neither operation nor autopsy showed tumor. The most prominent signs of tumor are certainly those due to cerebral pressure, and of course this may be caused by many conditions other than tumor. Many of the cases reported recovered, either with or without operation; some died either following operation or without this, and the findings have been negative. There were three cases in our series in which the clinical conditions pointed to the presence of a tumor, but in which none was found. Two of these cases were most interesting. In both the autopsy revealed an extensive torula infection of the brain with multiple foci chiefly in the cerebellum. This particular organism seems to have a predilection for the cerebral tissue which was shown also in the inoculated animals. It is not improbable that certain of the cases reported by Nonne and Funkelberg may have been due to an infection of this character. The third case was one of general gliosis of the cortex.

RECORD SHEETS FOR A NARCOTIC DRUG BOOK.

FRANK R. SPENCER, A.B., M.D., BOULDER.

Immediately after the Harrison law, concerning habit-forming drugs went into effect on March 1st, 1915, the author felt the need of some simple, yet accurate, means of recording habit-forming drugs daily, as they were administered to patients. He, therefore, had the accompanying record sheet printed and bound in book form, so that an accurate record can be kept of all narcotic drugs used and the book kept for the inspection of the federal and state authorities. The original dimensions of the sheet are about 14½ by 8 inches.

It will be noticed on this sheet an unusually large space has been left for the address. This has been done so that in case the patient is in Colorado temporarily, his former as well as his new address may be recorded. The name of the drug used should be recorded in the column under the word "drug," and the size of the dose under the word "dose." In case a solution has been used the percentage should be recorded under the words "per cent." If the drug was administered in the office, the hospital or the patient's residence, this may be designated under the word "place." The author keeps a carbon copy of each and every prescription and each carbon copy bears a number. The number of this carbon copy is then placed under "℞ No.", if a prescription has been given to a patient for a narcotic drug. The last column on the sheet is for the date.

It is needless to state that many modifications of this form will suggest themselves to the reader, but this sheet can be readily modified to suit individual requirements.

These sheets measure fifteen by eight and a half inches in size with a half-inch margin. The space between the lines measures three-eighths of an inch.

Physicians' Building.

NARCOTIC DRUG BOOK

NAME	ADDRESS	DRUG	DOSE	PER CENT	PLACE	℞ NO.	DATE

THE MALINGERER.*

W. M. OGLE, M.D., TRINIDAD.

In the medico-legal columns of the medical journals we frequently meet with court decisions in cases in which the malingerer has figured, and in fiction, he or she is often a valuable asset to the novelist. We find him in all walks of life, even among men eminent in national affairs. And we meet just as effective adroitness in maintaining the deception in one class as in another.

In this paper the writer does not intend to discuss the neurasthenic—whether he be hypochondriac or hysterical—but will confine himself to those cases in which the pretense is made with the object of extorting money from an individual or corporation.

If the malingerer has been coached by an unscrupulous doctor it is sometimes difficult to prove to the court that the case is one of deception. The jury system is not all that it should be, and it is difficult to convey to a body of laymen—no matter how conscientious or fair-minded—a true idea of the reality or unreality of the patient's claim, or to point out to them what is perhaps an exaggeration, either intentional or the reverse, or indeed sometimes the barest simulation. The suitor in these cases is nearly always of less means than the individual against whom he brings suit, and the jury is inclined to be indulgent and to regard the plaintiff as the under dog, and, if the defendant is a corporation, this indulgence is increased fourfold. A certain ex-juryman on being asked why the jury had pronounced such an excessive verdict against a certain corporation, replied: "You know a corporation has no soul, and it is also true that it does not wear trousers, so we were not taking money out of a man's pockets, but simply out of its dividends!"

So indulgent are the juries that the policy of most corporations is to settle out of court for any reasonable sum. The large corporations are represented by a small army of lawyers and claim-adjusters who aim to settle these cases, but the hungry malingerers keep them busy, and the number of such cases increases and has developed a form of legal practice in which there is the temptation among disreputable persons to manufacture evidence or form conspiracies for the purpose of fleecing corporations, and although radical criminal prosecutions have often been instituted, this species of villainy still flourishes. The shyster lawyer regards these cases as one of the blessings of Providence.

One afternoon the writer boarded a train in Philadelphia to spend the week-end in Delaware. As the train left the station he noticed on the opposite side of the car, two seats in advance, a young woman whom he knew, and probably the fact that her left arm was in a sling claimed his notice. On changing trains he was late entering the other car. To his surprise, he saw the young woman without the sling, and reaching out with the left hand to place a package in the baggage rack. He approached her with, "A few moments ago you were a cripple, and now you are not. Will you pardon my curiosity?" Her reply was to the effect that a few mornings before, while in a crowded street car, she held on to a strap. There was a collision and she suddenly sat down in the aisle. That evening a friend who was a lawyer called socially, and she laughingly related her morning's experience, when he said, "This is a serious matter. I need a new overcoat, and you will not object to some ready money; so wrap one arm up and carry it in a sling until I tell you otherwise." Months elapsed before I saw the girl again; and to my interrogation, "Did that fellow really get that overcoat?" she replied, "Yes, and I got $75; we went halves."

When the writer was superintendent of a general hospital in the East, a claim agent of a certain corporation came to him and requested that he forbid visitors to accident patients from their road until after the agent had seen the patient. He explained that he wished to make a fair settlement before the lawyer could influence the patient. This same claim agent reminded the writer that he had been obliged to appear in court with the hospital record and give testimony in several cases in which unfair claims had been made; so we compromised to the effect that all except relatives should be excluded.

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*Read before the Las Animas County Medical Society.

Throughout the entire country we find this same litigious spirit and greed for gain, which have induced individuals to perjure themselves and to go into court and get a verdict by the boldest of false testimony.

The most daring case of fraud that I ever saw was as follows: About twenty years ago a man said to me, "You are a doctor and I want to show you something that will interest you." He called his wife and asked her to show me her knees. I found transverse fractures of both patellas near the middle. The history given me was that she fell one day, causing one fracture, and afterwards fell frequently, the result being the second fracture. From what I could understand, the doctor in attendance simply used a figure-of-eight bandage. I told them that if the parts were scraped and wired they could yet hope for good union. On meeting the man some time later I inquired if anything had been done for his wife's knees. He replied, "No, we are thinking of bringing suit against the doctor." I heard nothing more of the case until five years ago. This lady alighted from a street car one day, her skirt caught on the step, and the moving car pulled her down and dragged her along the street four or five yards. I am told that she went into court, with a lawyer and a doctor, displayed the two fractured patellas —and gained a verdict that enabled her to buy a cottage at Atlantic City and spend the season there.

The real sufferer seldom gets so substantial a verdict as a malingerer. Honesty of purpose, dread of cross-examination, etc., keep him in a subdued frame of mind that is not appreciated by the jury at its true worth; and besides his lawyer is more apt to depend upon the straight facts of the case and has not put his client through a course of suggestion.

That very elastic and much-abused word "shock" furnishes as multitudinous a covering as does "charity." Strange to say, the material accidents lead to fewer suits than the ill-defined injuries that leave no physical trace. The burden of the complaint, probably sustained by expert testimony, is that they are victims of "shock." A commercial man, who was successful and commanded a large salary, was on a long train which passed another train on a siding. The second train started to back to the main track too soon, resulting in a collision between it and the last car of the passenger train in which the commercial traveller was riding, and he was somewhat jostled. As a result of the "shock" he developed "spinal irritation," which lasted for several months, or, rather, until the railroad company had settled substantially.

Page says, "There is a widespread impression that the spine and spinal cord are liable to meet with injury before all other parts in railway collision," and under the name of "concussion of the spine" are classed a number of complaints and symptoms which are commonly met with after railway accidents, but are rarely seen or heard of in the ordinary practice of the profession.

Earlier in this paper the writer mentioned the shyster lawyer, and with shame we must acknowledge that we have men of the same stamp in our own profession who advise such suits, and who, for monetary consideration will give the most positive testimony for whichever side engages them. It will be remembered, in the famous (or, rather, infamous) Thaw trial of some years ago, how surprising it was that so many doctors were ready to give exhaustive, most positive testimony for whichever side furnished the ducats. So shameful has this practice become that it is high time that the court appoint those who are to give expert testimony, and who will not be influenced by the money of either side in the litigation.

We can admire the devil from some points of view, and we can admire the skill of the lawyer of the malingerer. He is the one who knows first that the case which he is called upon to defend or prosecute is one of pretense and not of truth. His skill in giving hints that will develop a certain kind of symptom and especially prevent his client from overdoing his part, is worthy of the dramatic manager.

Not every malingerer is criminal. He may be a person of simple nature, susceptible to suggestion, upon whom grasping relatives have worked until they have convinced him that he is an invalid, and that he has certain symptoms which he would otherwise never have dreamt of. The lawyer does the rest.

And woe betide the doctor, be he specialist or general practitioner, when this lawyer gets him on the stand. The night before the doctor appears, this lawyer has probably sat up nearly all night to learn all about the internal ear, the ductless glands, or what-not—subjects concerning which the doctor has perhaps not kept himself up to the perfect mark. Our worthy lawyer grills the doctor to his heart's content, and when he is through, the jury is very apt to regard that doctor as less than three removes from being a most complete fool.

Additional List of BOOKS BELONGING TO THE COLORADO STATE MEDICAL SOCIETY.

In the Care of the Library of the Medical Society of the City and County of Denver.

Anesthesia, Local and regional; Allen, C. W. 1914.
Bandaging, Practical; E. L. Eliason. 1914.
Baking powder; Atkinson, T. G. 1915.
Biology, Modern problems of; Monot, C. S. 1913.
Bronchi, lungs and pleura, Diseases of; Lord, F. T. 1915.
Cancer problems; Bainbridge, W. S. 1914.
Christian science under the searchlight; Cooksey, N. B. 1915.
Cystoscopy and urethroscopy for general practitioners; Bransford, Lewis and E. G. Mark. 1915.
Diabetes mellitus. Foster, N. B. 1915.
Diagnosis, Clinical; Todd, J. C. 1914.
Diagnosis, Differential; Cabot, R. C. 1915.
Diagnosis, Manual of clinical; Simon, C. E. 1914.
Diarrheal, inflammatory and parasitic intestinal diseases; Gant, S. G. 1915.
Diet in health and disease; 4th ed. Friedenwald and Ruhräh, J. 1913.
Electricity, Medical, Roentgen rays and radium; Tousey, S. 1915.
Electrocardiography, Clinical; Lewis, T. 1913.
Embryology, Laboratory manual and textbook of; Prentiss, C. W. 1915.
Fever; its thermotaxis and metabolism; Ott, Isaac. 1914.
Flies; "Swat the fly," a one act fantasy; Gates, E. 1914.
Fractures and dislocations; Preston, M. E. 1915.
Fractures, Treatment of; Scudder, C. L. 1915.
Genetics, Problems of; Bateson, W. 1913.
Hair, Loss of; Müller, R. W. 1915.
Heart, Lectures on the; Lewis, T. 1915.
Hygiene, Manual of personal; 6th ed.; Pyle, W. L., ed. 1915.
Infection and immunity; 3rd ed.; Simon, C. E. 1915.
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Immunity, Studies in; Bordet, J. 1909.
Internal Medicine, Outlines of; Farr, C. B. 1915.
Malignant growths, Primary; Adler, I. 1912.
Medical treatment, Synopsis of; 2nd ed.; Shattuck, G. C. 1915.
Medicine, Text-book of; 4th ed.; 2 vols.; Strümpell, Adolph von. 1913.
Men, manners and medicine; Medicus Peregrinus. 1913.
Microorganisms, Pathogenic; 5th ed.; Park, W. and Williams, A. 1914.
Mothercraft; Comstock, S. 1915.
Nose, throat and ear, Manual of the diseases of; Gleason, E. B. 1914.
Nose and throat, Text-book of diseases of; Kyle, D. B. 1914.
Nurses, Materia medica and therapeutics for; Parker, L. A. 1915.
Pathology, Text-book of; Adami, J. G. and McCrae, J. 1912.
Sajous's Analytic cyclopedia of practical medicine; 7th ed.; 8 vols. 1915.
Scopolamin-morphine anesthesia; Hoosen, Bertha van. 1915.
Skin, Practical treatise on diseases of the; Ormsby, O. S. 1915.
Spectrum analysis; Macmunn, C. A. 1914.
Surgery, A new manual of; Ochsner, A. J. and Percy, N. M. 1915.
Syphilis, Recent studies in; 2nd ed.; Interstate medical journal reprints. 1911.
Syphilis, System of; 2nd ed.; 5 vols.; Power, D. and Murphy, J. K. 1914.
Therapeusis, Operative; 5 vols.; Johnson, A. B. 1915.
Tonsils and the voice in science, surgery, speech and song. Faulkner, R. B. 1913.
Tuberculosis, Atmospheric air in relation to; Hinsdale, G. 1914.
Tuberculosis nurse; La Motte, E. N. 1915.

News Notes

Dr. Robert M. Marshall, late of 508 Metropolitan Building, Denver, has literally struck oil in the southern part of New Mexico, and has, at least for the present, turned his back upon the practice of medicine.

Drs. W. H. Davis and Carl G. Parsons had a narrow escape on the third of October, when Dr. Davis's automobile, which was being driven by a chauffeur over a piece of rough road, swerved awkwardly on striking a rut, and turned over on its side. Fortunately neither of the occupants was badly hurt.

Dr. G. P. Lingenfelter spent part of the third week in September in Washington, D. C., in attendance at the congress of the Military Surgeons of America.

Dr. T. J. Danahey of Denver was operated upon by Dr. H. R. McGraw for acute appendicitis on October 6th. He is convalescing excellently.

Dr. J. L. Mortimer of Denver, who had been confined to the house for many months by a sick spell, is out again, and will return to his office about November 1st. His address will be as formerly, 606 Metropolitan building.

The Journal of the A. M. A. for September 18, 1915, contained articles by Dr. O M. Shere, of Denver, on myositis ossificans, and by Drs. Webb, Forster, and Gilbert, of Colorado Springs, on the position of the trachea in patients suffering from pulmonary tuberculosis.

At the meeting of the American Academy of Ophthalmology and Oto-laryngology, held in Chicago on October 6th and 7th, Dr. Edward Jackson read a paper entitled "The Adaptation of the Test Card to Its Double Function". The meeting was also attended by Dr. W. C. Bane, who afterwards journeyed to Pittsburg with Mrs. Bane on a visit to their married daughter.

On September 25th Dr. Fred H. Albee of New York delivered an address on "Plastic Bone Surgery," with lantern-slide illustrations, in the hall of the Denver County Medical Society.

The Journal of the New Jersey State Medical Society announces in its September issue that it has joined the other twenty-four state medical journals whose standard of ethics in advertising conforms to that laid down by the A. M. A. We congratulate the New Jersey Society on its good resolve, which, like some other excellent things, will cost money but is worth while.

Out of about 350 medical journals in the United States, only thirty, including the twenty-five state journals just referred to, have adopted the strictly correct standard of the A. M. A.

The Garfield County Medical Society met with Dr. J. T. Beall at Rifle on the 9th of September, the members' wives being present at the invitation of Mrs. Beall. The regular meeting was followed by an enjoyable lunch.

Dr. A. S. Brunk, La Junta, spent September in Maine on a hunting trip. Dr. W. M. Moore of the same town had a four weeks' vacation visiting the California expositions.

Dr. and Mrs. R. G. Hersom, Cheraw, are proud of a new son in their home.

Dr. Jessie E. Stubbs, La Junta, who has been seriously ill for some months, underwent an operation at Minnequa Hospital in the early part of September.

A rather interesting project is on foot in Denver to establish a physicians' and surgeons' telephone exchange, through which, when a physician is not at his office or home, patients may be enabled to reach him, or may at his request be referred to another physician who is caring for his practice.

The annual first aid contest of the coal miners of Colorado and New Mexico was held at Trinidad on September 23rd, in connection with the Trinidad-Las Animas County Fair. Fifteen teams competed. The following physicians acted as judges: Lieut. Hall, U. S. Army; and Drs. H. G. Garwood, J. W. Amesse, H. R. McGraw, and Robb Shea. Dr. John R. Espey had charge of the Victor-American teams on the field.

Major R. U. Patterson, who has had personal charge of the American Red Cross in Europe, including the sending of supplies for the European field, spent a day or two in Denver in the middle of September.

N. A. Bolles, who had already been fined several times on the same charge, was fined $200 and costs on two separate counts for administering habit-forming drugs to habitual users. About the same time a dentist working with the "Chicago Dental Parlors", 929 Seventeenth street, was fined the same amount on each of two complaints. Two "regular" physicians in different parts of the state have also been in court lately on a similar charge.

Dr. W. J. Robb of Silverton was lately married to Miss Zina McKenzie of Pueblo. The couple made a short honeymoon trip to Salt Lake City.

Dr. W. T. Royce has moved from Nunn to Carr, Dr. E. E. Martin having gone from Carr to Platteville.

After a rather prolonged period of secrecy, it became generally known a few weeks back that Dr. Beverley F. Kern, of Platteville (Denver and Gross, 1907) had been married for over a month to Miss Hooven, formerly a nurse at the Mercy Hospital in Denver. The couple were vigorously charivari'd until the doctor stood "treat" to a large Platteville crowd.

A recent issue of a Northern Colorado newspaper contained the statement that "Dr. —— will be in Julesburg, Sunday, to look after his large practice in that locality."

Dr. B. S. Wagner has become associated with Dr. E. E. Haskell at Windsor, and has taken over the interests of Dr. E. I. Raymond in the local hospital, and also in the office partnership formerly existing between Drs. Raymond and Haskell.

Dr. Albert E. Smith (Denver University, 1904) has located at Steamboat Springs.

The Misses Elfrida and Virginia, daughters of Dr. and Mrs. S. D. Van Meter, have gone from Boulder to the University of Pennsylvania to complete the course for the degree bachelor of science, which they hope to take after two years' further work. Both plan to take up the study of medicine.

In a recent issue of Farm and Fireside, the editor, after defending the doctors against the charge that their prices to farmers are exorbitant, remarks that it is to the interest of the government, state, county or local—to look after everyone's health, and that the time will come when we shall all pay our doctors' bills as we pay our taxes, "and every case of sickness may be treated free by the doctor of the board of health".

Dr. Samuel H. Kestenbaum has been appointed City Physician in Denver by Mayor Sharpley.

Dr. W. P. Harlow has resigned from his position as dean of the medical school of the University of Colorado. According to an apparently inspired article in a Boulder newspaper, the withdrawal of Dean Harlow is taken to presage a reorganization of the school, with the ultimate aim of securing a faculty of full-time instructors.

Dr. J. D. Gibson of Denver has been elected president of the American Electro-therapeutic Association.

The public officials and the medical profession of Boulder prided themselves on the prompt and vigorous action taken in arresting "Drs." W. Bascom, or Baskette, and F. M. Parmalee, pseudomedical men, on charges of swindling, forgery, and practising medicine without licenses.

Dr. E. J. Murray, of Baltimore, has bought the interest of Dr. Clinton K. Smith in the San Luis Valley Hospital at Alamosa.

Dr. S. W. Miller, Jr., who has been practising at Mead, ten miles northeast of Longmont, disappeared on September 6th, and has not been heard of since.

The wife of Dr. G. Alexander, of Castle Rock, was badly injured on September 28th, when a motor-car in which she and her husband and little daughter were riding was run down by a Denver street car.

Dr. J. W. Purcell is reported to have almost completely recovered from his long illness.

The wife of Dr. T. F. Kennedy of Galveston, Texas, was found dead in the Pullman car of a Denver-bound Colorado and Southern train by her small son, on September 18th.

Dr. L. McD. Burgess, of Delta, died on September 5th, aged forty-four years. He had undergone an operation at St. Luke's Hospital in the early summer of this year, and had been in poor health for the past two years. His funeral is reported to have been under the auspices of representatives of the Catholic church, of the Presbyterian church, and of the Masonic order. He leaves a wife, two sons, and a daughter.

The first Central States Conference on Social Hygiene will convene in Chicago, October 25th and 26th of this year. The sessions of the Conference will be held in the Florentine Room of the Congress Hotel, at the corner of Michigan Ave. and Congress Street. The following is a partial list of subjects to be considered: The Correlation of the Social Hygiene Movement With Other Public Health Movements; "Eugenic Laws", So-called; The Moral Value of the Modern Hospital; Reporting of Venereal Diseases; Public Venereal Clinics; Prostitution and the War; The Economic Loss Due to Prostitution; The Administration of the White Slave Traffic Act by the Federal Government; The Success of the Injunction and Abatement Law; The Education of Public Opinion in Regard to Social Hygiene; The Present Status of Education With Reference to Sex; The Newspaper as a Moral Educator; The Progress of the Social Hygiene Movement in the United States.

Boards will be convened at the Bureau of Public Health Service, 3 "B" Street, S. E. Washington, D. C., and at the Marine Hospitals of Boston, Mass.; New York, N. Y.; Chicago, Ill.; St. Louis, Mo.; Louisville, Ky.; New Orleans, La., and San Francisco, Cal., on Monday, November 1, 1915, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of Assistant Surgeon in the Public Health Service. For invitation to appear before the board of examiners, address "Surgeon-General, Public Health Service, Washington, D. C."

The next examination for persons desiring to enter the Medical Corps of the Navy will be held November 15, 1915, at Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes (Chicago), Ill.; Mare Island, Cal., and Puget Sound, Wash. Fuller information is given in a circular which may be seen at the Denver Medical Library.

Pueblo Notes.

Dr. and Mrs. H. M. Thompson left in the first part of September to spend their vacation in Pennsylvania and Virginia. Dr. Thompson stopped a few days in Chicago on his way home, to attend the meeting of the American Academy of Ophthalmology and Oto-laryngology.

Dr. and Mrs. H. B. Killough left in the latter part of September for an extended visit to Perryville, Mo.

Dr. and Mrs. J. W. Needles went to San Francisco and Los Angeles to visit the Exposition. They returned early this month.

Dr. A. T. King left on October 5th for California. He visited San Francisco and was to return about the middle of this month.

Dr. Fritz Lassen returned September 28 from California, where he had been taking in the Exposition.

Dr. J. J. McDonnell recently sustained a fracture of the patella, and has been confined to the hospital for several weeks. He is making a good recovery.

Dr. Crum Epler recently motored to Las Vegas, New Mex., where he attended the meeting of the New Mexico State Medical Society.

Dr. J. E. Peairs has returned from a visit to Detroit, where he was sent by the Pueblo Commerce Club to attend the National meeting of the City Planning Association. Dr. Peairs stopped two weeks in Chicago on his return trip.

Dr. D. E. Hoag, who was confined to the hospital for a week or more with pneumonia, has made a good recovery.

El Paso County Notes.

Dr. and Mrs. L. A. Miller of Colorado City spent a few days during September visiting the fairs in California.

Dr. H. P. Daniels and family of Colorado City are moving to Abilene, Kans., where Dr. Daniels will engage in the practice of medicine. Dr. Daniels formerly resided in Scottsville, Kans., but has been practicing in Colorado City since 1904.

Dr. Z. H. McClanahan and family of Colorado Springs are on a trip to Rochester, Minn., and Chicago.

Dr. E. L. Timmons and family of Colorado Springs are spending their vacation in California.

Dr. Charles S. Morrison of Colorado City was called to Fayette, Mo., by the serious illness of his mother.

A large representation from El Paso County attended the meeting of the State Society, and all returned very enthusiastic about the attention of the Denver physicians.

Dr. Omar Gillette of Colorado Springs has been chosen third vice-president of the American Public Health Association.

An article on "Sunlight Treatment", by Dr. Gerald B. Webb, of Colorado Springs, appeared in the September number of the Journal of Outdoor Life.

Medical Societies

DENVER COUNTY.

The regular business meeting of the **Denver County Medical Society** was held on September 7, 1915, Dr. W. W. Grant presiding.

The following twenty-two applications for membership were read and referred to the Board of Censors: Dr. F. E. Cole, Dr. C. A. Tygart, Dr. Robt. G. Packard, Dr. M. E. Preston, Dr. C. D. McKenzie, Dr. Wm. Joffee, Dr. H. R. Burns, Dr. M. A. Spangelberger, Dr. G. M. Wright, Dr. H. G. Garwood, Dr. N. Dymenberg, Dr. J. E. Johnson, Dr. Horace Heath, Dr. J. A. Philpott, Dr. H. S. Shafer, Dr. John Wm. Foley, Dr. A. L. Douglas, Dr. G. B. Hepp, Dr. G. S. Peck, Dr. Wm. M. Bane, Dr. George Atchison, Dr. T. A. Triplett.

The following amendment to the By-Laws, Article VII, was then read, and on motion, adopted:

> Sec. 2. Any member who shall fail to pay his dues on or before the 1st of April in any year shall be held as suspended from membership in this Society and his name shall be so reported to the State Society. Such member shall not be allowed to vote at any meeting of the Society, nor shall be eligible to any office, or to a position on any committee. Such suspended member may be reinstated upon the payment of his dues at any time within one year. If such a member shall fail to pay his dues within one year from the date of his suspension his name shall be dropped

from the rolls of membership and he can only regain his membership by re-election.

Dr. Arndt made a motion that the President appoint a committee to draft resolutions on the death of Dr. Louis H. Schultz. Carried.

Dr. Grant urged that the informal report of cases and exhibition of patients be made a prominent feature in the coming meetings, and asked that all members of the Society take an active part in the discussions.

Motion was made by Dr. Buchtel that Dr. Thomas H. Hawkins be elected an honorary member of the Society. Unanimously carried.

Attendance, forty-eight.

H. R. STILWILL, Secretary.

Dr. Grant reports that the following have been appointed as "Committee on Red Cross Medical Work" of the Denver Society: Dr. S. Fosdick Jones, Dr. Henry Sewall, Dr. W. A. Jayne, Dr. W. W. Grant, Dr. H. R. Stilwill.

The regular meeting of the **Denver County Medical Society** was held on September 21, 1915, Dr. W. W. Grant presiding.

The following applications for membership were read:

Dr. Joseph H. Allen, Dr. Harry L. Stevens, Dr. S. P. Brandenburg, Dr. Cicero L. Lincoln, Dr. J. F. Howard, and Dr. Edwin L. Apperson.

Dr. Grant announced that Dr. Fred H. Albee, of New York, would deliver an address in the hall of the society, on Friday, Sept. 24th, at 8:15 p. m., on "Plastic Bone Surgery."

The Board of Censors reported favorably on the application of Dr. Joseph H. Shapiro, transferred from the **Boulder County Medical Society**, and he was duly elected a member of the society.

Scientific program. Symposium on Immunity and Vaccines. A paper was read by Dr. S. G. Bonney, entitled "Impressions as to the Value of Bacterial Vaccines in the Treatment of Pulmonary Tuberculosis." Next paper by Dr. Henry Sewall, "An Account of Recent Experiments in Nasal Immunity." A paper on the "Surgical Uses of Vaccines" was read by Dr. William M. Spitzer. Discussions opened by Dr. Philip Hillkowitz. Also discussed by Drs. Burdick, Simon and Moore.

Attendance, 108.

H. R. STILWILL,
Secretary.

PROWERS COUNTY.

The ninth annual meeting of the **Prowers County Medical Society** was held in Dr. Knuckey's office on October 5. The following were present: Drs. Burnett, Fee, Friend, Knuckey, Likes, Sheller, Wilson; and one visitor, Dr. Broemser, who made application for membership.

Under head of urgent business it was unanimously voted that fees for examinations for fraternal insurance societies should be two dollars.

After general discussions of business and lines of work pertaining to the medical society it was moved by Dr. Wilson, and carried unanimously, that the present officers be retained for the ensuing year. These officers are: President, Burnett; vice president, Sheller; secretary-treasurer, Friend; censors, Davis, Sheller; and Wilson, appointed by the president to fill vacancy caused by the death of Dr. Bartelt.

The next meeting will be held on the first Tuesday in January, with President Burnett, who tendered a banquet at the hotel.

Papers—Likes and Friend.

The society adjourned to Lamar Hospital, which, under the efficient matron, Miss Myrtle May Long, is growing cosmos out of chaos; in fact, is becoming a credit to Lamar.

F. MILTON FRIEND, Secretary.

PUEBLO COUNTY.

The Pueblo County Medical Society met in regular session September 7. Dr. Hunnicutt was elected president pro tem.

Dr. R. C. Robe presented a very interesting and instructive paper on "Adrenal Insufficiency." The discussion was opened by Dr. Keeney, most of those present participating.

After much discussion concerning a letter from the secretary of the State Fair in regard to the society taking charge of the Baby Contest the following committee was appointed to organize and conduct the work: Drs. Robe, R. R. Taylor and Steinberg.

The secretary reported that the Constitution and By-laws were ready to be printed and gave an estimate of the cost.

It was moved and carried that the matter be laid on the table till the next regular meeting.

J. H. WOODBRIDGE, Secretary.

Book Reviews

The Starvation Treatment of Diabetes; With a Series of Graduated Diets as Used at the Massachusetts General Hospital. By Lewis Webb Hill, M.D., and Rena S. Eckman (Dietitian); with an introduction by Richard C. Cabot, M.D., Boston, Mass., W. M. Leonard; 1915. Price, $1.

Allen's discovery that sugar and acetone disappear from the urine of diabetic patients within one to a few days when food is absolutely withheld is our greatest therapeutic acquisition in many years. Other observers dallied with but did not quite grasp the situation, just as one prospector kicks aside the precious float while another finds the mine. None but he who has thrown up his hands in complete discouragement over the downward progress of a diabetic and then, putting the patient on starvation treatment, has found the sugar to wholly and the acetone almost disappear from the urine, can appreciate the beneficence of Allen's teaching.

The treatment has been enthusiastically endorsd by Joslin, who has had phenomenal experience in this disease. The real test of the physician's efficiency lies not in making the patient sugar and acetone free, but in keeping him so. It is said that careless return to ordinary diet after the starvation period puts the invalid in a worse condition than before. A most circumspect and graduated dietary, having due regard to calories and food quality, must be instituted in the case of the sugar-free patient. Allen's general idea seems to be to increase the fat and carbohydrate to the maximum of tolerance while keeping the protein content of the food always low. General directions form a most unsatisfactory guide to practical treatment. Herein lies the virtue of the little volume under review. It presents a clear account as to how to bring the patient through the starvation period and then gives a series of forty-nine diet lists, graduated in composition from the ration suitable to the starving patient to that which he may enjoy after returning to an approximately normal condition. The intention here is not to minutely describe this method of treatment, but to direct attention to the monograph as a valuable handbook of practical reference. H. S.

A Text-book of Medicine for Students and Practitioners. By Dr. Adolf v. Strümpell, Professor of Special Pathology and Therapeutics at the University of Leipsic. Fourth American edition, translated from the seventeenth revised German edition, with editorial notes, additional chapters, and a section on mental diseases, by Herman F. Vickery, A.B., M.D., instructor in clinical medicine, Harvard University, etc., and Philip Coombs Knapp, A.M., M.D., ex-president of the American Neurological Association, etc. With six plates and 224 illustrations in the text. Two volumes. New York and London; D. Appleton and Company, 1913.

This work, published in its present form a year or so ago, has just been added to the medical library in Denver. Strümpell's text-book is a compact work of reference on the practice of medicine, which would make an excellent addition to the bookshelves of those physicians who do not already possess it. The book has been translated into French, English, Italian, Spanish, Russian, modern Greek, Turkish and Japanese; and some of these translations have had several editions. The scientific grasp of the work harmonizes with the fact that the author's professorial chair associates the subjects of special pathology and therapeutics. No physician can attain a thorough mastery of his art without a broad and thorough understanding of pathology. We have excellent schools, skilful teachers and a good deal of scientific enthusiasm on this side of the Atlantic; but the members of one nationality cannot fail to profit by contact with the different shades of scientific thought and practice to be found in other lands. Strümpell's original work is a masterpiece of clear and comprehensive exposition of the causes, diagnosis and treatment of human diseases; and the American edition has been translated into graceful and idiomatic English. Although the first American edition was published as far back as 1886, the present edition is completely modern; and, in its thorough attention to recent scientific investigation, compares very favorably with works which are new to the market.

A Text-book of Pathology; by Alfred Stengel, M. D., Professor of Medicine, University of Pennsylvania, and Herbert Fox, M. D., Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Sixth Edition, Reset. Octavo of 1045 pages, with 468 text-illustrations, many in colors, and 15 colored plates. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $6.00 net; half morocco, $7.50 net.

That this book has reached the sixth edition is proof of its well-merited popularity. The sixth edition should meet with even greater favor than did its predecessors.

The arrangement of the subjects, and the clear and direct manner of their presentation are excellent and will appeal to the teacher as well as the student of pathology.

There are many new features in the sixth edition which are not to be found in other text-books on pathology.

The chemistry of inflammation which is properly a part of pathology, but heretofore neglected by writers on pathology, adds much to this chapter. It sets forth a natural and easily grasped basis for the phenomena of inflammation.

The classification of bacteria greatly simplifies this confused and ever-widening field.

The paragraphs on pathological physiology, though few, mark another advance over books of its kind. They are a decided advantage, bringing to the mind of the student an explanation of the clinical manifestations occasioned by the pathological lesion.

There are many other excellent features in the sixth edition which make the study of pathology intensely interesting and more easily understood.

It is one of the best books on the subject.

C. F. H.

Medical Ethnology. By Charles E. Woodruff, A.M., M.D., Associate Editor of "American Medicine", Lieutenant-Colonel, U. S. Army, Retired. Eight volumes, 330 pages. New York: Rebman and Co.

This is a revised edition of its author's work on "The Effects of Tropical Light on White Men". By the widening of its scope and the incorporation of new material it has outgrown its former name. Undoubtedly the value of the work has been increased by taking into account factors other than pigmentation that characterize the different races of men, and influence the extinction or survival of migrating peoples.

It is a book that brings together an immense number of observations and surmises to be found scattered through medical and general literature. If not conclusive or authoritative, it is very suggestive of thought. The medical man in busy practice will find it a departure from the general routine of his thought or reading, that will help him regard his daily work from a new point of view. Light and heat are elemental conditions of life, which may well be harmful when any great departure is made from the intensities of them to which the body is adapted.

Although the massing of evidence on one side might seem to argue that they are altogether harmful, it is well to remember that the balance which makes for the highest health may be exceeded, as well as fallen short of. E. J.

The Medical Clinics of Chicago. Volume I, Number 1. (July, 1915). Octavo of 208 pages, 37 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published bi-monthly. Price per year, paper, $8; cloth, $12.

This, the first of the Medical Clinics, has brought together the clinical talks of eight well-known medical men of Chicago. Every branch of internal medicine is represented and all the cases are thoroughly, though in some instances briefly, reviewed. Charles L. Mix makes a differential diagnosis of lung abscess and describes a case of lesion of the cauda equina with findings at operation. Charles Spencer Williamson discusses gout, nephritis and liver abscess. The two clinics of Isaac A. Abt on infantile tuberculosis are most instructive, especially in differential diagnosis. Robert B. Preble's clinics are always very instructive and interesting, and these on chronic lymphatic leukemia and renal and cardiac insufficiency are up to his standard. Maurice L. Goodkind talks on pneumonia with prognosis according to the Gibson rule; he describes the hyposensitive condition of the anus and urethra in the incipient stages of tabes, and tells of the Swift-Ellis treatment. His cholelithiasis is diagnosed by exclusion and substantiated by operation. His cases are unusual ones and well worked up. Frederick Tice gives thorough discussion to syphilitic aortitis, and in a clinic on hour-glass stomach, dwells upon the causes of abdominal pain. Walter Hamburger takes up congenital pulmonary stenosis, frequency of associated tuberculosis, and aneurism of the arch of the aorta and of the abdominal aorta with the rôle of syphilis in the etiology. The obscure subject of syphilis of the central nervous system is well given by Ralph C. Hamill.

The laboratory and clinical tests are all explained in detail, but as in the clinics of Dr. John B. Murphy, which these clinics resemble in great part, it is unfortunate that the diagnosis is given at the beginning rather than at the end of the articles, as is done in many other similar works, such as Cabot's Differential Diagnosis.

Volume I, Number II, September, 1915.—The second number of the Medical Clinics is fully up to the standard set by the first. Abt's two articles on tuberculous meningitis include the permanganate test of the spinal fluid. William Allen Pusey, a new author, discusses the advantages of the X-ray in epithelioma, and illustrates many results. Tice gives brief good clinics on heart disease in pregnancy, purpura hemorrhagica, infantilism and pulmonary osteo-arthropathy. Hamburger's clinics on heart include cardiac neurosis, auricular fibrillation and irregularities of the pulse. Preble shows a remarkable case of splenomyelogenous leukemia, with improvement after treatment with benzol. Goodkind dissertates on causes of splenic enlargement. Hamill pictures two instructive cases of locomotor ataxia, and shows a case of primary optic atrophy. Williamson in two cases of tubercular pleurisy demonstrates Loeffler's method of demonstrating tubercle bacilli in sputum. Mix's differential diagnosis in a case of duodenal ulcer is the best part of this issue of the Clinics. R. G. P.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago; August, 1915. Published bimonthly by W. B. Saunders Company, Philadelphia and London. Price per year, $8.

This issue is quite up to the usual standard of excellence established by previous numbers. The first article, "Talk on Syphilis" is striking in its almost absolute condemnation of salvarsan and again calls to mind the manner in which the pendulum swings regarding new therapeutic agents. It seems only yesterday that the whole world (lay as well as medical) was loud and unanimous in its praise of this new "cure", and now we see one of the foremost authorities discard it. Is it true that the happy medium can only be reached years after a new method or drug is introduced?

The treatment of wrist drop by transplantation of the tendon of the flexor carpi radialis is well presented and an important matter. M. E. P.

The Principles and Practice of Obstetrics. By Joseph B. DeLee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School; Obstetrician to the Chicago Lying-in Hospital and Dispensary, and to Wesley and Mercy Hospitals; Consulting Obstetrician to Cook County and Provident Hospitals, etc. Second Edition, thoroughly revised; 1,087 pages; 938 illustrations, 175 of them in colors. Philadelphia and London: W. B. Saunders. 1915.

DeLee's Principles and Practice of Obstetrics needs no introduction. It is one of the best textbooks on this subject. The second edition has been thoroughly revised and each chapter brought up to date. By this revision the book is somewhat larger. For the student it is, perhaps, rather full, but to obviate this condition the author has used two sets of type, the less important matter and detail being in smaller type so that the practitioner may have his abundant detail and that the student may easily pick out the essential, underlying principles. In the new volume chapters on Abderhalden's pregnancy reaction, "twilight sleep," "dry labor," labor in old primiparae, blood-pressure and extraperitoneal Cesarean section have been much enlarged. The illustrations, which are excellent, have been increased in number, and some of those in the first edition have been replaced by better ones.

C. B. I.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery. Neurology, Pediatrics, etc., etc. Vol. III. Twenty-fifth Series, 1915. Philadelphia and London: J. B. Lippincott Co. Price, $2.

In this issue of the quarterly there are twenty-five articles grouped under four headings, viz.: "Diagnosis and Treatment", "Pediatrics", "Borderland Medicine" and "Surgery".

The first thirty-four pages are devoted to the diagnosis and treatment of gonorrhea and offer an excellent resumé of the modern method of dealing with a most troublesome disease. The subject is very capably handled, and the practical application of the most recent scientific determinations bearing on this condition is a noteworthy feature and reflects great credit on the author, Lewis W. Bremerman.

Each of the subjects is well presented, especially the article by Cutter, "One Hundred Thousand Men Minus", which is indeed a classic. This paper well illustrates how broad a medical man may be in contradistinction to the narrowness and technicality into which many specialists tend to drift.

The article by Rahm entitled "War Experiences and Observations in Germany and France" is up to the minute and the conclusions drawn are valuable. M. E. P.

Textbook of Materia Medica for Nurses. Compiled by Lavinia L. Dock, Graduate of Bellevue Training School for Nurses. Fifth edition, revised and enlarged. G. P. Putnam's Sons, New York and London. The Knickerbocker Press.

Now that nurses are required to have a more thorough course in the different branches of medicine than formerly, the necessity for special text books for nurses is evident.

This is the fifth edition of a well-adapted text book on materia medica for nurses. The third edition was revised by Miss Bean of the Johns Hopkins Training School for Nurses, and the fourth edition by Miss Ethel Johns of the same school.

The book first deals with the names of the different classes of medicine according to their physiological action, the different preparations and solutions of drugs, and the classification of remedies as to their prominent therapeutical action besides directions of how to make solutions of a certain percentage and how to figure a child's dose, and the metric system.

The drugs are then taken up individually and are well classified and described in reference to the special needs of the nurse, giving a concise and comprehensive view of the drugs as to their composition, dosage and physiological action. The work does not deal with therapeutics but does give the symptoms of poisoning and their antidotes. This is followed by much that would be useful to a nurse, as poisons and their treatment, electro-therapeutics and radiology, serum therapy, emetics, mineral waters, relation of minims to drops, hypodermic medication and the unclassified drugs. Thus it makes a very practical book for a nurse. M. R. S.

The Practical Medicine Series, Vol. LV. Gynecology. Edited by Emilius C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago; and Herbert M. Stowe, M.D., Assistant Professor of Obstetrics, Northwestern University Medical School, Attending Gynecologist to Cook County Hospital. Series 1915. Chicago, the Year Book Publishers. Price of this volume, $1.35.

This volume is one of a series of ten under the general editorial charge of Dr. Charles L. Mix, Professor of Physical Diagnosis in the Northwestern University Medical School. The series is published primarily for the general practitioner, and covers in a rather thorough manner the latest in medicine and surgery.

The volume under consideration is a compact review of the year's work in gynecology, giving to the gynecologist as well as to the general practitioner, a most comprehensive insight into the recent developments of the science.

The book is of handy pocket size. The print and paper could be improved upon. C. P.

The Practical Medicine Series, comprising ten volumes on the year's progress in medicine and surgery. Under the general editorial charge of Charles L. Mix, A. M., M. D., Volume V. Pediatrics, edited by Isaac A. Abt. M. D., Orthopedic Surgery, edited by John Ridlon, A. M., M. D. Series 1915. Chicago, the Year Book Publishers, 327 S. La Salle St. Price of this volume, $1.35.

This series of volumes, which has been published for the past fifteen years, has become well known to the profession as presenting in a condensed form the best articles which have appeared in the medical literature of the preceding year. In this volume the section on Pediatrics deals in a rather extensive way with the subject of infant feeding and disorders of nutrition. The section on Orthopedic Surgery notes the advances which have been made during the year, especially interesting being the articles upon Potts' Disease, Scoliosis and Infantile Paralysis. The comments upon the literature reviewed by the editor, a veteran orthopedist, are not the least interesting part of this section.

H. W. W.

Habits That Handicap. By Chas. B. Towns. The Century Co., New York.

This small volume written by a layman is worthy of commendation for its exposition of the evils due to the use of tobacco and its radical condemnation of this pernicious habit, if for no other reason. It has other points of merit, however, with reference to alcoholism and morphinism, the discussion of which exhibits a deeper insight into these subject than is generally shown by the medical profession.

The Towns-Lambert treatment, of which Mr. Towns is the originator, has little, however, to recommend it, when compared with the scientific treatment of these diseases, and the remedies he uses have long been discarded by the more advanced medical specialists in this work. Mr. Towns' dogmatic formula for the treatment of opium, alcohol and tobacco habits, as the author terms them, smacks too strongly of empiricism (putting it charitably) to be worthy of serious consideration; and the extensive use of his treatment is due to the widespread and questionable advertising it has received, rather than to any real intrinsic value. J. H. M.

Epithelial Newgrowth at the Limbus Removed by Mesothorium After Five Years of Relapses. (Archiv für Augenheilkunde, v. 77, p. 173.) Köllner reports the case of a woman of fifty-three years who came for the first time in January, 1908, on account of a small pterygium-like growth at the temporal side of the left corneal limbus. The growth was removed like a pterygium, but reappeared six weeks later, when it was again excised. In September, 1909, a further recurrence extended almost entirely around the limbus. The operation of removal was repeated at this time, and again for further recurrences in November, 1910, June, 1911, and January, 1912. In May, 1913, a further extensive recurrence (the masses by this time being irregularly pigmented) was treated with mesothorium radiations. The amount of mesothorium used was 10 mg., enclosed in a hard rubber capsule. At each sitting the capsule was applied to six different areas of the growth, for periods ranging from one to three minutes. The applications were repeated daily for eighteen successive days. No notable inflammatory reaction of the conjunctiva occurred. When the patient was sent home at the conclusion of the course of treatment there was no appreciable evidence of cure having begun, but an expectation of postponed results was based upon the case reported by Agricola (Klinische Monatsblätter für Augenheilkunde, v. 51 (1), p. 650).

The patient did not return until five months later. The growth had entirely disappeared, the eye was free from irritation, and the enlarged conjunctival vessels which had extended on to the growth had also in large part disappeared. The site of the growth was represented on the periphery of the cornea by extraordinarily delicate gray scar tissue, with a perfectly smooth surface, through which the tracery of the iris was everywhere perceptible. On the conjunctiva near the corneal limbus the former position of the growth was indicated by pigmentation. Still three months later the appearance of the eye was unchanged.

Microscopic sections of fragments of the growth removed before treatment with mesothorium was begun showed it to be entirely non-vascular, and that it consisted exclusively of epithelial downgrowths with scanty interstitial tissue. The benign character of the growth was shown by entire absence of any tendency on the part of the epithelial plugs to penetrate into the underlying connective tissue.

Patent Medicines in New York.—The New York Board of Health has lately adopted stringent regulations for the registration with the department of health of patent, proprietary or secret-formula medicines. Applicants are required to state the name of the preparation, the name and address of the applicant, the form in which the preparation is marketed, the therapeutic effects claimed for the preparation, the names in English of the ingredients to which the therapeutic effects claimed are attributed and the names in English of all other ingredients except such as are physiologically inactive. The application must further reproduce the exact text of all advertising matter, and every statement set forth upon or contained in the package, box, bottle, or container as sold; and the exact text of all advertising matter relating to the said preparation contained in any circular, leaflet or book sold or distributed with or in connection with the preparation. A sample of each preparation must be furnished, and notice must be given of subsequent changes in the form or text of labels, advertising matter or statements; and these must be approved by the Board of Health before use. Manufacturers and others are forbidden in any way to state or suggest that the certificate of registration issued by the department of health passes upon the merits of the preparation or accepts any claims to therapeutic action.

Controlling Cancer in England.—Portsmouth was the first municipality in England to undertake a public educational campaign for the control of cancer and it would appear that the measures adopted in 1913 are already taking effect. The annual report of the Medical Officer of Health, Dr. A. Mearns Fraser, for the year 1914, states that there were only 197 deaths from cancer in Portsmouth last year, as compared with 230 in 1913. This decrease occurs in the face of an increase of population. Dr. Fraser reports that from statements made to him by local medical men the publication of circulars and newspaper articles by the Health Department has been instrumental in inducing a number of persons suffering from early operable cancer to secure treatment, the result of which it is hoped will be permanent. When the educational measures were put in force two years ago, the cancer death rate of the city had for a long period been increasing. The methods adopted included the monthly publication in the local newspapers of articles regarding cancer and the printing and distribution of a Health Department circular on the subject. Arrangements were made for periodical lectures to midwives, nurses, and to those engaged in social work in Portsmouth; and for free microscopical examinations and reports on suspected cancerous growths in order to assist physicians in immediate diagnosis in the case of patients who were unable to pay for such laboratory service.

Technique of Vaccination.—The following description of the technique of vaccination was recently issued by the New York Health Department: Vaccination should be performed on the outer surface of the upper arm opposite the insertion of the deltoid muscle. The outer surface of the calf may be used, but it should be remembered that this site is more likely to be rubbed and is thus rendered more liable to infection. A small drop of vaccine is placed on the spot that has been cleansed and dried, and then with the new sterile needle, scalpel or platinum scarifier a scarification is made, not larger than the end of a match, or a single scratch not more than a quarter of an inch long, the scarification or scratch being made through the drop of virus. (Cross hatching or more than one scratch must not under any circumstances be employed.) The vaccination should be allowed to thoroughly dry in the air. No dressing should be placed on the arm. In the event of a "take," a dressing of clean sterile gauze or clean cheesecloth may be fastened to the undergarment to protect the vaccination. The patient must be warned not to scratch or disturb it. No shield of any variety should be used. The scab should not be removed.

Falsely Labelled Medicines.—More than fifty legal actions have been terminated successfully by the U. S. Department of Agriculture under the Sherley Amendment to the Food and Drugs Act, which prohibits false and fraudulent claims as to the curative or therapeutic effects of drugs or medicines. Claims made by the manufacturers for the curative powers of these preparations ranged from tuberculosis, smallpox and diphtheria to coughs, colds and scalp diseases. It is pointed out by the Department that traffic in medicines for which false and fraudulent claims are made is not only an economic fraud of the worst kind, in that a worthless preparation that costs but a few cents is frequently sold for a dollar or more a bottle, but that health, or even life, is endangered by failure to secure the service of a physician until too late in such serious diseases as tuberculosis, diphtheria, pneumonia and scarlet fever.

The Unseen Living World.—(The following brief but eloquent popular statement of the principles of bacteriology was recently sent all over the country by the United States Public Health Service for newspaper use on the anniversary of the birth of Leuwenhoek, October 24th.) Great things have small beginnings. A spectacle maker, Jan Leippersheim by name, living in Holland, invented a crude magnifying glass in 1608. Anton von Leuwenhoek, born in Delft, this day 1632, improved this clumsy toy and evolved a compound microscope which has become the most valuable sanitary tool yet devised by man. That first microscope was as far removed from the high-powered instrument of today as is the modern American from the original caveman. Yet by this faulty means, Leuwenhoek, naturalist, physician and botanist, discovered certain minute bodies which he called "little animals". He made drawings of these and today we know them for those useful friends and malignant enemies of man—bacteria.

We spend our days surrounded by another world, a living world of countless billions, invisible to the naked eye, silent, tireless, destroying the living, consuming the dead, useful in the sciences and arts, yet often followed by a train of sickness, suffering and death. A curious paradox this, yet bacteria are at once the greatest friends and the fiercest foes of every living thing. Not animals, as Leuwenhoek thought, but vegetables, bacteria consist of two classes, those which prey on living things and those which reduce to their original minerals, fluids and gases, every dead thing which they attack. They are of various shapes, round like marbles or straight like little sticks. They grow in clusters, chains, and in pairs. They are ubiquitous. The dusty air, the earth and its waters, the interior of animals and plants all contain them. They cause the fermentation of foods, they make cheese, they produce disease and some of them when killed and injected into an animal protect it against the very disease which they would have produced if living. Many of them live as harmless creatures in the body of an animal for years, only to kill their host when the opportunity presents. Their study has given birth to a science, bacteriology, one of the foundation stones of public health.

Their mere presence does not necessarily produce disease. Recalling the parable of the sower, some bacteria fall by the wayside, some fall upon stony places, and some fall in good ground and bring forth the fruit of suffering, perhaps of death. A normal, temperate life, free alike from the gluttony of idleness or overwork, the sound mind in the sound body, a cheerful, normal environment, these form the stony places in which bacteria take no root. The depraved appetites of mind and body, the dark and sordid atmosphere of penury, the nerve-racking and strength-undermining trades, these prepare the good ground.

The great weapon against bacteria is cleanliness. The mastery over premature death lies to a great measure in our own hands. Clean persons, clean cities, clean workshops and clean lives are the makers of public health. The United States Public Health Service and other sanitary bodies of this country are gradually bringing these facts home to the general public. In this way cleanliness is becoming more general, and the span of life in America is gradually being lengthened. All of which is largely due to the microscope.

The Rockefeller Foundation: International Health Commission.—The first part of the first annual report of the Rockefeller Foundation to be made public (covering the period to the end of 1914) deals with the activities of the International Health Commission.

The first meetings of the Rockefeller Foundation, after its legal organization had been completed, were devoted to the discussion of the policies and lines of work which were likely to present the largest probability of permanent and far-reaching usefulness. There was a general agreement that the advancement of public health through medical research and education, including the demonstration of known methods of treating and preventing disease, afforded the surest prospect of such usefulness. It was, accordingly, decided at the meeting of June 27, 1913, to establish the International Health Commission.

The resolution creating the Commission assigned to it two tasks: (1) "to extend to other countries the work of eradicating hookworm disease as opportunity should offer"; and (2) "so far as practicable to follow up the treatment and cure of this disease with the establishment of agencies for the promotion of public sanitation and the spread of the knowledge of scientific medicine".

At the first meeting of the Commission the Director-General was authorized to go in person or to send a representative to British dependencies and to Latin-American countries for the purpose of preliminary investigation and conference. Travel on these missions consumed most of the time of the Director-General during the first twelve months of the Commission's existence. As a direct consequence of these visits, plans were adopted and work begun in British Guiana, Antigua, Trinidad, St. Lucia, Grenada and Egypt.

In addition to the work undertaken in these and other British colonies, the Commission has responded favorably to invitations from several Central American countries, and work has been inaugurated in Panama, Nicaragua, Costa Rica and Guatemala.

In spite of the fact that a large amount of time has necessarily been given to preliminary conferences, surveys and the work of organization, a very substantial achievement has already been made, 37,902 persons having been examined, and 19,425 persons treated in all the foreign areas up to December 31, 1914. But more significant than the number of persons treated has been the establishment of relations of cooperation and mutual confidence between the Commission and the governments and physicians of the communities visited, and the resulting stimulation of interest on the part of the common people, whereby the principle of self-help has been steadily maintained.

In addition to carrying on its work in foreign countries, the International Health Commission has also undertaken to complete the program of the Rockefeller Sanitary Commission for the eradication of hookworm disease in the Southern States. This program did not contemplate complete eradication under the supervision of the Sanitary Commission, but aimed rather at a comprehensive demonstration in each state, first of the presence of the disease, and secondly of the method of treating and preventing it. This demonstration is now entering its final stage with the inauguration of the so-called intensive community work whereby, in a limited number of typical communities in each state, it is hoped to show convincingly the possibility of treating every infected person, and at the same time of preventing soil pollution—the only way of preventing the recurrence of the disease.

The relief and control of this one disease is an object lesson in the relief and control of disease in general. This one is simple and tangible; the common man can easily understand what it is, and what it means to him as a menace to his health and to his earning power; he knows its whole story; he knows its simple treatment and its one simple preventive measure. Having seen this one disease brought under control and having had the worth of the effort brought home to him, he is prepared to give heed when spoken to about the control of diseases that are less simple and less tangible. This whole work is essentially educational; and its best result is in securing the helpful cooperation of the people in the work of bringing this disease and all other preventable diseases under control.

Killing of Birds. All insectivorous birds, and nearly all hawks and owls, are protected by the laws of Colorado. It is forbidden to kill them or to capture them alive, or to take or destroy their nests or eggs. The penalty for violation is a fine of not more than $25.00 for each bird or nest or eggs, or imprisonment not to exceed ten days in jail, or both. These birds are also protected by the federal law for the protection of migratory birds.

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(Incorporated November 1, 1888.)

The Next Meeting Will Be Held in Glenwood Springs, September 5th, 6th, and 7th, 1916.

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Boulder County, every Thursday; C. L. La Rue, Boulder.

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Canning Compounds Dangerous to Health.—The Department of Agriculture criticizes the demand on the part of housewives for salicylic acid and boric acid for use in canning. These preparations are sometimes sold in the form of powder under various trade names and are recommended by the promoters for use in preserving canned goods in home canning. While it is true that these compounds may retard the decay of the fruit or vegetable, it is pointed out by the department that their use may be attended by serious disturbances of digestion and health. The federal food and drugs act prohibits the use of harmful preservatives in foods that enter interstate commerce, and the food law of nearly every state in the Union forbids the sale within the state of foods that have been preserved with harmful substances. The housewife should not use, in the foods she provides for her family, substances that she could not use in foods for sale without violating the law, because these substances are injurious to health. Fruits and vegetables can be kept indefinitely if they are sterilized by heat and properly sealed. The use of such preserving powders encourages uncleanly or careless work in canning, reliance being placed in the efficacy of the preserving compound instead of upon cleanliness and heat.

Bulletins as to the preserving and canning of fruits and vegetables may be obtained without cost from the Department of Agriculture (Farmers' Bulletin No. 203 on Canned Fruits, etc., and No. 521 on Canning Tomatoes).

Colorado Medicine

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The attention of members of the Colorado State Medical Society is specially called to the complete report of the proceedings of the House of Delegates, printed in another part of this issue of Colorado Medicine.

WANTED—BACK NUMBERS OF COLORADO MEDICINE. **A resolution of the House of Delegates has made it desirable to obtain if possible a few more copies of the issues of Colorado Medicine for the earlier months of this year than are at present available. It will therefore be appreciated if members of the Society having such copies which they do not themselves require will send them at once to the librarian of the state society, 266 Metropolitan Building, Denver. We are also very anxious to obtain, for permanent preservation with the archives of the Society, one or more copies of the first number of Colorado Medicine, 1903, vol. 1, No. 1. Will any member who can supply this number kindly write to the librarian?**

Editorial Comment

THE STUDY OF HUMAN BLOOD PRESSURE.

Especially in this country, the increased longevity of civilized man is due rather to control of those infectious diseases which threaten the earlier decades of life than to a proper understanding or avoidance of the degenerative changes which slowly and insidiously overtake men and women who have passed their prime. It is not far from a century now since Richard Bright studied the disease which was named in his honor; but it was many years after Bright before a beginning was made towards the clear comprehension of those vascular changes which go hand in hand with chronic kidney disease. Janeway (Bulletin of the Johns Hopkins Hospital, vol. 26, p. 341) points out that the clinical study of blood pressure really dates from the publication by Von Basch in 1881 of work done with his first sphygmomanometer. For some time interest in the new method was confined to Von Basch and his immediate pupils. In 1886 the literature of human arterial pressure, so far as Janeway has been able to collect it, comprised only twelve titles. His personal bibliographic references in this field for the past ten years, however, amount to more than one thousand titles.

The first real sphymomanometer was devised by Von Basch. The main inaccuracies in the application of the sphygmomanometer were overcome by Riva-Rocci and Leonard Hill who in 1896 and 1897 respectively independently devised the method of circular compression. In 1901 Von Recklinghausen introduced the wide cuff which has since become universal, and in 1905 Korotkow published his method of auscultatory determination, which has supplanted other methods for the clinical determination of the diastolic arterial pressure. Janeway mentions as among the leading pioneers in this study, in this country Erlanger, Cook and Briggs, and Stanton; in England, Leonard Hill, George Oliver, and MacWilliams; in France, Gallavardin; and in Germany, Hensen, Rumprecht, Von Recklinghausen and Ottfried Müller.

Flint's Practice of Medicine used to state that the diagnosis of chronic and of acute Bright's disease should be based upon the evidence afforded by examination of the urine. Janeway remarks that no medical teacher at the present time regards the urinary findings as the first evidence of this type of renal disease, though recognizing their great importance. Hypertension is not only a cardinal symptom of chronic Bright's disease, but one now more easily detected than any other manifestation of the disease. "We have learned how misleading it is to infer from the presence or absence of albumen and casts either the presence or absence of chronic Bright's disease".

To that important symptom-complex in which the symptom first in importance and in time of development is increased arterial pressure, Janeway attaches the title "chronic hypertensive cardiovascular disease". In these patients evidences of renal insufficiency are conspicuously absent during the earlier stages. It was formerly supposed that such patients suffered from idiopathic hypertrophy of the heart.

Janeway touches upon some of the interesting complexities of the study of vascular hypertension. Increased tension is not a necessary sequence of ordinary arteriosclerosis. The extent of the kidney lesions and the height of the blood pressure do not run parallel. In the early stages the kidney is only one of the organs implicated in the widespread disease of the arterioles, and hence may show but little change.

Up to this time the most important application of blood pressure measurement in prognosis has been made by the life insurance companies. Of 525 persons accepted by one company, during a period of four years, with an average pressure only ten millimeters above the general average of accepted risks, the average mortality was thirty per cent. above the general average of the company.

In regard to treatment we are as yet pretty much in the dark. Janeway is not impressed with the validity of the remarkable claims made for the so-called "d'arsonvalization", a special form of high frequency current. The trouble is that we do not yet understand the real mechanism by which high blood pressure is produced. "The treatment of essential hypertension today is the treatment of the patient, not of the hypertension".

MARRIAGE AND TUBERCULOSIS IN THE COURTS.

From time to time court decisions have held that concealment of the existence of venereal disease before marriage was adequate cause for annulment of the matrimonial contract. In the case of Svenson v. Svenson, 158 N. Y., 54, 70 N. E., 120, the court said: "The disease is one involving disgrace in its contraction and presence, contagious in marital association, and includes danger of transmission and heredity that even science cannot fathom or certainly define".

It does not appear that any similar judgment had previously been rendered regarding the prior existence and concealment of tuberculosis in one of the contracting parties, but the New York Supreme Court has recently established a precedent of this kind. The defendant in the case of Sobol v. Sobol, (150 N. Y., Sup., 248) had been treated for tuberculosis prior to the time of his marriage and knew that he was suffering from the disease. He told the plaintiff before marriage that certain symptoms from which he suffered were due to a cold. A few days after marriage his condition was such as to require the attention of a physician, who subsequently testified in the court that in his opinion the defendant was incurable. No defense was offered. No offspring had resulted from the marriage.

The court held that while tuberculosis did not so closely affect the marriage relations as a venereal disease, it was a malady which through infection might produce grave and disastrous results to the other party, as well as possible evil consequences to the offspring of the union. Although not involving "disgrace in its contraction and presence" it certainly did include "danger of transmission and heredity that even science cannot fathom or certainly define". The marriage was therefore annulled on the ground of fraudulent concealment and misrepresentation.

It seems not unlikely that as the public at large gradually acquires a deeper understanding of the social problems involved in the existence of such serious diseases as syphilis, gonorrhea, and advanced tuberculosis, not only will the law-courts be more frequently appealed to in this respect after marriage, but popular sentiment will demand a clean bill of health as an even more indispensable requisite for the matrimonial venture than a handsome dowry or an elaborate trousseau.

OBSTETRICS VERSUS CÆSARIAN SECTION.

Publicity is often a good thing. It makes for higher standards. Discussion also is beneficial, by bringing out the valuable points of conflicting opinions. Twenty years ago the operation for appendicitis was subjected to criticism, for and against, by surgeons throughout the country. The pendulum swung widely from radical to conservative.

In the current number of Surgery, Gynecology and Obstetrics, Holmes, under the caption "Obstetrics a Lost Art", undertakes to settle the question of the indications for Cæsarian section by the dictum that only in case of contracted pelvis should the operation be considered.

The object of the article is to reduce the number of cases in which the operation is promiscuously done, often without due regard for the laws of expert obstetrics, and apparently (as Holmes states) because from lack of proper obstetric knowledge, the Cæsarian operation seems for the operator the easiest way out. As is proper concerning the use of any surgical operation, Holmes aims to check the abuse of Cæsarian section by strictly limiting its indications.

Various authorities have previously stated as indications for Cæsarian section such conditions as placenta previa and ablatio placentae with hemorrhage, eclampsia with viable child, prolapse of the cord, death of the mother, and obstruction by tumor.

For centuries past accoucheurs have lost either infant or mother or both. The duty of the present day obstetrician is, whenever possible, to save both mother and child. In view of the fact that no set rule ever works infallibly in medicine, it seems that the rational way to decide what course to pursue in any given case is to consider the possibilities from every standpoint, and then select the method and route which apparently offer the best chance for both mother and infant.

There are many instances where Cæsarian section properly performed is the operation of choice in conditions other than contracted pelvis, but we agree with Holmes that it should not be done because of obstetric inefficiency. C. A. F.

DANGER IN COSMETICS.

According to the United States census of 1910, the value of the perfumery and cosmetics produced in those establishments of the United States engaged principally in the compounding of perfumes, face lotions, and cosmetics generally, had increased since 1880 from $2,203,004 to $14,211,969, although the population of the country in the same time had only risen from fifty million to ninety-two million. The census return does not, however, include the many hundred laboratories in which these same preparations may be compounded as a side line. Wilbert (Public Health Reports, vol. 30, p. 3059) estimates on a conservative basis that the cost of cosmetic preparations to the consumer in this country is in excess of fifty million dollars annually.

A widespread misuse of drugs in the form of beautifying agents is principally due to the fact that the federal and many of the state food and drug laws do not include preparations made and sold as cosmetics. Many poisonous drugs are thus at the present time falsely labeled "harmless". In spite of the fact (editorial in Jour. A. M. A., vol. 62, p. 538) that nearly a thousand cases of poisoning attributed to wood alcohol have been reported in the literature since 1893, a large number of toilet preparations recently examined contained methyl alcohol. Among such preparations were the following: egg shampoo, hair tonics, bay rhum, witch hazel, toilet waters, Florida water, and perfumes. Among the potentially harmful drugs used is so-called hair restoratives are lead acetate, silver nitrate, paraphenylene diamine, and resorcin. The dangerous drugs used in beauty washes and face enamels include flake white or lead carbonate; diachylon or lead plaster; corrosive sublimate or mercuric chloride; calomel or mercurous chloride; white precipitate or ammoniated mercury; pearl white or bismuth subnitrate; zinc white or zinc oxide; Chinese white or commercial zinc oxide; and zinc soap or zinc stearate.

There is irony in the fact that females are more susceptible to plumbism than males, and that young women are more susceptible to plumbism than those more advanced in years. Not only have Robinson and Sante reported cases of lead intoxication due to skin absorption from cosmetics, but they believe that among the many thousands of girls and women who use preparations containing lead, there must be many untoward effects which are not recognized as being due to lead poisoning. Mercuric chloride is frequently used in freckle lotions. The gullibility of that portion of the public which is over-anxious to improve its facial appearance is demonstrated by the extensive use of lotions containing magnesium sulphate or Epsom salt. In its crude form the drug usually costs five cents a pound, whereas in the form of any one of the popular skin or wrinkle lotions it is sold at the price of $2 to $4 a pound.

Wilbert suggests that to prevent serious intoxications as well as obvious deception and fraud, cosmetics should be treated as drugs, and that the makers of proprietaries sold as cosmetics should be required to state on the label the names of any poisonous ingredients which their products may contain.

"Dr." Henry W. Baskette and F. W. Parmalee, who were arrested several weeks ago for running a medical confidence game, have again appeared in Boulder County, and are said to have induced some of their alleged victims to sign affidavits asking for a change of venue for the trial of their case. Baskette is said to have offered the cancellation of the promissory notes which he collected in exchange for the affidavits.

Original Articles

METHODS OF ESTIMATING THE FUNCTIONAL EFFICIENCY OF THE LIVER.*

C. B. VAN ZANT, M.D., DENVER.

The large size of the liver, its protected position, and its double blood supply suggest, a priori, that it is an organ of the first rank in the physical economy.

For ages it was the terra incognita of the body, and aside from the formation of bile, it revealed to the investigator no apparent use. Among the ancients ignorance of its wide range of activities relegated this organ to the realm of psychology, for it was supposed to influence the moods of the individual—a belief of which we still have evidence in such old words as melancholy and hypochondriac.

Gropers after deeper knowledge of the liver pursued their blindfold way down through the centuries; and the glory of announcing an epochal discovery was given to Claude Bernard but a few decades ago. From that time have dated the successive advances made in the determination of the manifold work of this great gland.

So intricate and baffling has been the organic chemistry carried on in this largest laboratory of the body, that it has been only recently that physiologic chemistry has found ways of interpreting the liver's work in terms of pure science.

In view of the lack of clear clinical evidences of defects in the activity of the liver it is not surprising that such loose expressions as biliousness and hepatic torpor have had such large vogue in the past. From the standpoint of scientific accuracy, we greatly need definite methods of determining the activity of the liver, both in health and in disease. To meet this need various functional tests have been proposed which are largely based on physiologic and pathologic chemistry. Some of these are relatively simple and within easy reach of the general practitioner; others are intricate and require the skill of the expert laboratory worker. How reliable and valuable they will ultimately prove to be in clinical work, time alone will tell.

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*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, and 7, 1915.

To collect from the literature, and to present, some of these so-called tests of hepatic functioning, is the object of the present paper.

In order to take up this study systematically, it may be well at this point to summarize the functions of the liver, as they are generally recognized today.

1st. It forms bile.
2nd. It forms urea.
3rd. It forms sugar.
4th. It forms fibrinogen.
5th. It forms antithrombin.
6th. It forms certain ferments.
7th. It stores up iron.
8th. It protects against certain toxic subtances and bacteria.

Based on these known functions, certain tests as to the activity of the liver in disease will now be taken up, seriatim.

1. Tests relating to the adequacy of the bile-forming function of the liver.

(a) Bile in the urine.—This is present in all cases of jaundice due to hepatic disease; in many disorders of the liver not severe enough to cause jaundice; and in rapid hemolysis. Schmidt[1] has shown that the bile pigments and acids are largely formed by the liver cells from dissolved hemoglobin, coming to the liver, in the presence of glycogen. Any pathologic condition, therefore, attended by unusual hemolysis, leads to an excessive formation of bile; and as this cannot always be discharged into the intestine as fast as it is formed, part may be resorbed and cause jaundice. Among such pathologic hemolytic conditions, attended by over-activity of the liver, with jaundice, are malaria and chloroform and ether poisoning.

It is to be said, however, in the case of the jaundice of acute yellow atrophy of the liver, or of chloroform, phosphorus and ether poisoning, that it usually indicates not simply a functional disturbance of the liver, but also severe organic lesions.[2] Brule[3] maintains that when single bile elements, and not the bile as a whole, are eliminated in the urine, one may affirm an actual injury or disease of the liver cells.

(b) Hypercholesterinemia as a test.—As a result of recent studies, Henes[4] believes that gall-stones originate in the gall-bladder, from a chronic excess of cholesterin in the blood (over 2.8 gm. per litre of blood serum). In his opinion, where symptoms point to the liver, this hypercholesterinemia indicates gall-stones; and by this test he claims that he has repeatedly differentiated gall-stones and gall-bladder disease from duodenal ulcer, gastric cancer, appendicitis, and intestinal adhesions. This test does not hold good in the presence of fever; but otherwise it seems a helpful index of gall-stones, in doubtful cases.

(c) The phenoltetrachlorphthalein test.—This, perhaps the most valuable of all recent liver-function tests, was carefully worked out by Rowntree[5] and Whipple.[6] In the normal individual, when 400 mg. of the substance mentioned are injected into a vein, it is excreted by the liver into the bile, and appears in the feces within 48 hours—none appearing in the urine. According to Rowntree, an output of this chemical in the feces below 30 per cent, or its appearance in the urine, is rare in health, but frequent in disease of the liver. In liver injury by chloroform, phosphorus, or other poisons, in hepatic carcinoma and syphilis, and in complete obstructive jaundice, the amount of phenoltetrachlorphthalein in the feces may be reduced moderately, or to a mere trace, and it may appear in the urine. This test, though promising, is not easy of application.

(d) Urobilin and urobilinogen tests.—Normally all urobilin formed in the intestine is destroyed or changed in the liver into bile pigment, and does not appear in the urine in its own form. When the liver is defective, urobilin does appear in the urine and becomes a criterion of value, as attested by Wilbur and Addis, Steiger, Labre, Chesney, Marshall, Rowntree, von Jaksch and others.[7]

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[1] Landois, Human Physiology, 10th ed., pp. 319, 321, 322.

[2] Opie and Alford, Jour. A. M. A., Mar. 21, 1914.

[3] Revue de Chirurgie, Paris, June 1914, No. 6.

[4] Jour. A. M. A., July 11, 1914.

[5] Johns Hopkins Hosp. Bull. Nov. 1913, p. 327.

[6] Amer. Jour. Physiology, 1914, 33, p. 50.
Jour. A. M. A., Oct. 31, 1914.

[7] Wilbur & Addis, Archives Int. Med., Feb., 1914.
Steiger. Quoted in Jour. A. M. A., Oct. 3, 1914.
Labre, London Lancet, Jan. 3, 1914.
Chesney, Jour. A. M. A., Oct. 31, 1914.
Von Jaksch, Klin. Diagnostik, 3 Aufl., 1892, p. 348.

This test responds in nearly all liver diseases, even very mild ones—Pick's disease and chronic passive hyperemia being exceptions.

2. Tests concerning the adequacy of the urea-forming function of the liver.

These tests have to do with the so-called nitrogen partition or percentages in the blood and urine. In the normal liver many ammonium compounds and amino-acids[8], in part at least, suffer a change into urea, which enters the general circulation by the hepatic veins, and is excreted from the body by the kidneys. When the liver is pathologically degenerated, the amino-acids[9] and ammonium compounds[10] pass through it more or less unchanged, overcharge the general blood stream, and are excreted by the urine[11] in abnormal quantity. Thus a diminution of urea in the blood and urine and an increase of the amino-acids in the blood and urine become a means, when properly worked out, of gauging the liver activity. According to MacAdam[12] this increase of the amino-acids in the urine is both absolute and relative to the total nitrogen. Steiger[13] believes that the determination of the amino-acid output of the urine is the only really instructive method among the chemical tests of liver activity.

The recent very careful work upon the nitrogen content of the blood and urine, in hepatic cases, by Chesney, Marshall and Rowntree[14], likewise strongly points to the great value of this test. In this connection Opie and Alford[15] point out that crystals of leucin and tyrosin in the urine often suggest, in the presence of jaundice, disintegration of the hepatic tissue. This is especially true in acute yellow atrophy of the liver, in delayed chloroform and phosphorus poisoning, and in some of the toxemias of pregnancy. This fact is corroborated by Krehl[16] and Landois.[17]

Labbé and Bonchage[18] affirm that in certain cases of diabetes of organic liver origin, this excess of amino-acids and ammonia in the urine is very characteristic and valuable as a test of the liver origin of the diabetes.

As a result of an extensive study, Falk and Saxl[19] came to the following conclusions as to the urea and amino-acid percent test of the urine. It does not respond in sarcoma of the liver, leukemia, amyloid degeneration or chronic passive congestion. In liver cancer and in phosphorus poisoning it responds often; in catarrhal jaundice, gall-stones, fatty and luetic livers, occasionally; in liver cirrhosis, very constantly and markedly. This makes it a valuable differential test of cirrhosis from other liver conditions.

Bassler[20] is authority for the statement that excessive secretion of urea in the urine, azoturia, may at times be an indication of deranged liver function.

3. Tests having to do with the adequacy of the sugar-forming function of the liver.

Alimentary tests based on the giving of dextrose and determining subsequently the amount of it in the blood and urine, are subject to so many conflicting factors as to be clinically valueless. Other sugars less easily mobilized by the liver, give better results. Accordingly we have,

(a) The Strauss levulose test[21].—This consists of the appearance of levulose or fruit sugar in the urine, after 100 gm. of it have been ingested by mouth. In the normal individual this quantity will not produce levulosuria; in many liver cases it will. The test is easy to make and, when joined with other tests[22], is corroborative of hepatic disease. The levulose test seems of most value in cirrhosis and chronic passive congestion of the liver[23].

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[8] Van Slyke, Jour. Biol. Chem., vol. 16, p. 197 and 213.

Fiske, Jour. Biol. Chem., vol. 18, p. 295.

Kaufman, Archives de physiol., vol. 26, p. 531.

[9] Jour. Biol. Chem., vol. 16, p. 229.

[10] Krehl, Clinical Pathology, 2nd. ed., p. 361.

[11] Landois, Physiology, 10th ed., p. 476 and 477.

[12] Jour. of Pathology & Bacteriology, London, Oct., 1913.

[13] Jour. A. M. A., Oct. 3, 1914.

[14] Jour. A. M. A., Oct. 31, 1914.

[15] Jour. A. M. A., Mar. 21, 1914.

[16] Krehl, Clinical Pathology, 2nd ed., p. 353.

[17] Landois, Physiology, 10th ed., p. 476 and 503.

[18] London Lancet, Jan. 3, 1914.

[19] Zeitschr. f. klin. Med., 1911, vol. 73, p. 131 and 325.

[20] Jour. A. M. A., Jan. 24, 1914, p. 284.

[21] Jour. A. M. A., Oct. 31, 1914. Johns Hopkins Hosp. Bull., Nov., 1913, p. 329.

[22] Correspondenz—Blatt für schweizer Aerzte, Basel, Aug., 1914.

[23] Johns Hopkins Hosp. Bull., vol. 24, p. 329.

(b) The Bauer galactose test[24].—After the ingestion of 40 gm. of galactose in the morning, fasting, the urine is examined every two hours for this sugar. Its presence in the urine is abnormal in health; but is constant in catarrhal jaundice, frequent in gall-stones, cirrhosis, cancer and other hepatic diseases. This test is easy of application and, according to Wagner[25] and Hatiegan[26], more accurate than the Strauss levulose test. Wörner and Reiss[27] believe that the galactose test points to certain definite liver affections, as distinguished from other hepatic disorders.

4. Tests bearing upon the adequacy of the fibrinogen-forming function of the liver.

According to Steiger[28] the normal fibrinogen content of the blood is .3 to .4 per cent, largely formed by the liver, and readily estimated. In liver injuries and diseases, the fibrinogen of the blood may drop to so low a level as to greatly lessen coagulation, and to favor hemorrhage. This effect is often manifest in acute yellow atrophy, chronic cholemia, phosphorus and chloroform poisoning, yellow fever, cirrhosis, and puerperal toxemia. This diminished formation of fibrinogen by a diseased liver has been made the basis of a test of function by Whipple[29], known as Whipple's fibrinogen test. It is valuable in a number of liver conditions, notably in cirrhosis, both for its diagnostic and prognostic import.

5. Tests having to do with the adequacy of the anti-thrombin forming function of the liver.

This function seems fairly well established[30]. That injury or disease of the liver leads to a very marked reduction in the anti-thrombin output of the liver has been well established by Denny and Minot (Amer. J. Physiol., Aug., 1915). Based on this fact, a test of function may soon become available.

6. Tests relating to the adequacy of the liver in its ferment-forming or inhibiting function.

It would appear that the liver has the power to form certain ferments which it throws into the circulation for further use. Among these are to be mentioned diastatic, lipolytic, and fibrinolytic agents. Alteration in the liver's output of these substances becomes a gauge of the organ's condition. Among the ferment tests may be mentioned

(a) Ghedini's diastase test[31].—In this test the blood serum is examined for liver diastase and maltase. Sound livers add these ferments to the blood in large amounts; diseased ones, in very small quantities, or not at all. This test, not difficult to make in a well equipped laboratory, seems to offer a fairly reliable means of judging of liver activity.

(b) Whipple's lipase test[32].—This test involves a determination of the amount of the lipolytic ferment of the blood, by a relatively simple technique. This ferment is present in the blood normally in quite constant amount, and would seem to be formed more abundantly in liver disease. By this test an increase of lipase up to six or eight times the normal percent is shown in nearly all cases of eclampsia, in liver injuries, chloroform poisoning, from the toxins of infections, in acute yellow atrophy, in cholangitis, and in liver abscess. In cirrhosis and obstructive jaundice, the test is less accurate.

(c) The blood-dust test[33].—It was found by Jeannin and Levant that the small refractive bodies, or hemoconiæ, normally seen in a drop of fresh blood, greatly increase, provided the liver is sound, after the ingestion of 50 gm. of butter. If the liver is diseased, this increase does not occur. If the hemoconiæ diminish to 15 or 20 in a drop of blood, or entirely disappear, the fact is to be taken as a grave prognostic. This test was used by Jeannin in many cases of jaundice in pregnancy, and always differentiated mild from dangerous forms of this affection.

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[24] Wien. med. Wochenschr., 1906, vol. 56. Jour. A. M. A., Jan. 25, 1913, p. 287.

[25] Zeitschr. für klin. Med., Berlin, 80, 1914, p. 216.

[26] Wien. klin. Woch, Apl. 2, 1914.

[27] Deutsche med. Wochenschr., Apl. 30, 1914.

[28] Correspondenz—Blatt für schweizer Aerzte, Basel, Aug. 1, 1914, vol. 140.

[29] Johns Hopkins Hosp. Bull., vol. 24, p. 208. Jour. A. M. A., Dec. 13, 1913, and Oct. 31, 1914, p. 1535.

[30] Ott, Human Physiology, 3rd ed., p. 206. Howell, Physiology, 4th ed., p. 453.

[31] Quoted in Jour. A. M. A., Feb. 22, 1913.

[32] Johns Hopkins Hosp. Bull., vol. 24, p. 207, 343, 357.

[33] Jour. A. M. A., June 6, 1914, p. 1848.

(d) The fibrinolytic ferment test[34].—Worked out by Goodpasture, of Johns Hopkins, this test is readily demonstrated.

This fibrin-destroying ferment seems confined to atrophic cirrhosis. In these cases, blood drawn ante- or post-mortem will clot normally; but if kept at body temperature, the clot will usually completely dissolve in from three and a half to five hours. The chief value of this test lies in its apparent power to differentiate atrophic cirrhosis from other liver conditions.

7. Tests concerning the iron-storing function of the liver.

According to Krehl[35] certain liver affections may give rise to a pernicious type of anemia. But as yet no definite tests on the iron-storehousing of the liver have been evolved.

8. Tests relating to the protective function of the liver.

The detoxication of a number of harmful nitrogenous substances derived from the intestines has been implied in considering the urea-forming activity of the liver. Defects in the detoxicating action of the liver are considered by some clinicians to be causative of the eclampsia of uremia and of pregnancy, and of deep hepatic comas. What toxic substances may be found in the blood in these cases, and used as tests, the future will determine. Possibly cystinuria and alkaptonuria are abnormalities of detoxication on the part of the liver[36], which may come to be applied as tests.

Acidosis Test.—There is ground for believing that the liver is the organ in which are formed the so-called "acetone bodies"—acetone and diacetic and oxybutyric acids[37]. Increased activity of the liver leads to increased acidosis in the blood and urine; diminished activity to diminished acidosis. This test may have a bearing on the acidosis of certain cases of hepatic diabetes, of chloroform poisoning, and of acute yellow atrophy.

In concluding this brief resumé of liver function tests, it may be said that the phenoltetrachlorphthalein test, the fibrinogen test, and the nitrogen blood and urine tests rank first in value. Each of the others, when present, gives a measure of support to these leading methods. Some of them have a distinct differentiating value as between various hepatic diseases: and some afford a distinct prognostic guidance. As with all laboratory findings, no one of these tests is to be given an undue place in diagnosis; but in doubtful cases, after full weight has been given to the symptoms and clinical data, these tests may prove to be helpful criteria, and may steady an otherwise wavering diagnosis.

462 Metropolitan Building.

DISCUSSION.

George H. Cattermole, Boulder: This seems an opportune time to introduce studies in metabolism and the secretions of internal organs. I am glad Dr. Van Zant has inaugurated this work. Just now studies in metabolism are becoming prominent in medical literature and in the work of the active physicians and investigators.

In taking the liver as the subject of his paper, he selected the largest glandular organ, and probably one of the most important. For instance, at the meeting of the American Medical Association, held in San Francisco in June, a local investigator had removed, as I remember it, seven-eighths of the kidney substance from dogs without producing any symptoms of toxemia or eclampsia. This is interesting, as we were formerly led to believe that the kidney function was such an important one in producing these toxemias. At the present time we are interested in the causes of toxemia of pregnancy. It is quite probable the liver function is largely responsible for the toxemia of pregnancy. If we are able to estimate the function of the liver, we may be able to combat these toxemias. I should like in this connection to cite a case that was under treatment last year. A woman, who had diabetes for at least fifteen years, developed nephritis and cirrhosis of the liver as secondary conditions. After these symptoms appeared the sugar began to disappear. In the last year of her life she showed no glycosuria. I find this mentioned in Osler's work on medicine, but he gives no explanation for it. Whether it is due to the intake being so low that all the sugar is cared for by the system, or whether it is due to some change in the internal secretions, or secretions of the liver, is a question; but in cirrhosis and sometimes in nephritis, the sugar may disappear in glycosuria.

The tests of the liver function seem rather intricate, but if we are not all prepared to make them, there are certain men who are doing laboratory work who should be prepared for that kind of work, and I feel sure that investigations in this field will help us in treating these conditions.

C. A. Ferris, Denver: I think Dr. Van Zant should be highly commended for bringing this subject forward, as it is a step in the right direction in progressive medicine. It is a subject which appeals to me in this way: we know very well, from our ordinary studies in physiology, that the liver is an organ which has to take the products of digestion in the first stage, that is, semidigested, and practically a great deal of the metabolism of the body must take place by the function of the liver.

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[34] Jour. A. M. A., Oct. 13, 1914, p. 1534 and 1535.

Johns Hopkins Hosp. Bull., Nov., 1914, p. 330.

[35] Krehl, Clinical Pathology, 2nd ed., p. 136 and 146.

[36] Osler's System of Medicine, vol. 3, p. 444, 520 and 521.

[37] Deutsch. Archiv. f. klin. Med., 1913, 111, p. 479.

In estimating the condition of toxemia in pregnancy, we have been accustomed in years past to take casual observations of the condition of the urine, looking for albumin, and casually letting it go if we find nothing of that nature in our patient's urine. In my studies of the underlying causes of eclampsia, it has appealed to me that the liver must certainly be very much more at fault in the toxemia of pregnancy than the kidney, inasmuch as the liver has to take the products of digestion and metabolize them before the waste products are eliminated by the kidneys. Therefore, if we can get at the primary cause of the toxemia, we shall be able to allay subsequent conditions which arise, and which we do not find until the condition has gone to the stage where we find a trace of albumin in the urine. If it is possible to discover some system whereby the laboratory man can give us a quick examination in regard to the conditions where there is any suspicion of anything of this nature, unquestionably we can eliminate a great deal of trouble which has previously gone to such a stage as to be beyond recall when we discovered it.

C. B. Van Zant (closing): I would simply say, in closing, that I am glad to hear the emphasis placed by both Dr. Cattermole and Dr. Ferris upon the importance of these liver tests in cases of puerperal toxemia. In this field may lie one of their largest values.

I do not wish to be misunderstood as placing undue weight on the value of these tests. They are still subjudice and nothing but a term of years will give them their final standing in diagnostic procedures. Nevertheless in general work we are often confronted by doubtful hepatic conditions where we are unable to estimate either the condition or the work of the liver. We may have considered carefully the history, the clinical data, the physical signs, and yet remain in doubt as to the exact condition that we are dealing with. It is for these cases, where we need further help, where our diagnosis is uncertain, that we may possibly find in these special tests of the liver a determining means of diagnosis.

THE EFFECTS OF HIGH ALTITUDE ON CARDIAC AFFECTIONS.*

A. ZEDERBAUM, M.D., DENVER.

A pronounced, or only suspected, valvular lesion of the heart, or any cardiac irregularity in general, means to the average physician a decided contraindication to residence in places of high altitude. Among the laity this fear of high altitude is so strong that parents and relatives deny themselves the pleasure of accompanying or visiting their dear ones if there be the slightest disturbance in the activity of their hearts. One would search the medical literature in vain to find a convincing scientific explanation of this phenomenon. Some vaguely assert that the danger to the affected heart lies in the want of oxygen, but experiments do not bear out this statement. Others[1] argue that in high altitude the outer surface of the heart is placed under a decreased atmospheric pressure while the intracardiac blood pressure remains the same, hence the danger of a dilatation of the heart wall, especially on the right side. We shall see later that this supposition is also untenable. Only a few writers in medicine have taken a firm stand against this attitude of the profession in a question of such great importance which, strange to say, is almost ignored in the leading text-books. In Europe, and particularly in those parts of the transatlantic continent where this question could be best studied, as in Switzerland, in southern Germany, and in Italy, much experimental and clinical work has been done in that direction, with results which denounce the unwarranted prejudice as to the injurious effects of high altitudes on pathological conditions of the heart. P. Schrumpf[2] in St. Moritz, Switzerland, who has devoted much time and study to the subject, has convinced himself that many a cardiac patient who has come to this place of 6000 feet elevation, against the protest of his physician, has done remarkably well. Even elderly people with impaired heart action have very often been directly benefited by exchanging the lowlands for a mountain resort. In this connection the well-known clinician Prof Eichhorst[3] of Zürich relates his experience with a Dutch gentleman of the age of 70 with insufficiency of the mitral valve who could not be kept from visiting his tuberculous son in Davos (4200 feet), and who did so well there that he made the place his permanent home. Since then Eichhorst has sent a great number of cardiac cases of various kinds to similar places of high altitude for their therapeutic effects, and claims never to have had cause to regret his action. Schrumpf studied the statistics of the district hospital in Samaden (over 9000 ft.), and found that locally acquired disease of the heart was a very rare occurrence in the vast region of the Engadine of which Samaden is the capital, although acute rheumatism is known there too well. Prof. Determan[4] of Freiburg (Baden) has seen a great number of cardiac cases in his large and well-known sanatorium for nervous and metabolic disturbances in St. Blasien (Black Forest), and fully corroborates the conclusions of the above-mentioned authors, basing his statements on strictly scientific data and well studied clinical observations. Another Swiss physician, Felix[5], in Zürich, asserts that he has found that patients with advanced aneurysm of the aorta are more alert, and feel much better, in the mountains than in the valley, an experience which our own late lamented S. E. Solly[6] also met with in his practice in Colorado Springs. Of French authors P. M. Regnard[7], in his elaborate work on the effects of high altitude, advises that only cases of mitral and aortic stenosis, and of mitral insufficiency when complicated with pericardial and pleuritic adhesions, be kept away from high altitudes. To him cardiac lesions per se do not otherwise constitute a contraindication to residence in the mountains. In Italy E. Galli[8], among many others, reports all kinds of cardiac cases in which unmistakable benefit had been derived from a prolonged sojourn in the mountains.

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*Read at the annual meeting of the Colorado State Medical Society, October 5th, 6th, and 7th, 1915.

[1] Frank Donaldson, "The Causes of Cardiac Failure in High Altitudes", Med. News, Sept. 8, 1886.

[2] Herzkrankheiten u. Hochgebirge, D. Arch. f. Kl. M., Bd. 113, Hft. 5 & 6.

[3] Korrespondenzbl. f. Schweizer Aerzte, 1911, No. 28.

Of American writers on our subject one of the most prolific is Robert H. Babcock[9] of Chicago, who in his book, and in a number of valuable articles in medical magazines, tries to dispel the nightmare of cardiac affections in connection with high altitudes. To him cardiac overstrain from exercise at a high altitude is often the real cause of distress, and not the altitude itself. Persons with normal hearts are likely to have more symptoms than are those with weak hearts, because normal persons overtax themselves and set up a condition of cardiac overstrain. H. Sewall[10] believes that heart diseases are benefited or made worse in high altitudes in proportion to the power of the heart to respond to excessive demands upon it, and thus to increase the range of accommodation. Acclimatization, or training, can in his opinion greatly expand the limits through which the heart is capable of adjusting itself without overstrain. He also considers, like R. H. Babcock, mitral stenosis to be, for mechanical reasons, a contraindication for high altitude, though he has to admit that many persons with this lesion live in comfort in Denver. J. N. Hall[11] asserts that a long experience in Colorado has taught him that the average case of compensated valvular disease does as well here as anywhere else. Patients with valvular disease, but with well nourished heart muscle and fair arteries, may, almost regardless of age, go to reasonably high altitudes with safety, if only they avoid excessive exertion which would cause any considerable dyspnea. W. W. Grant[12] does not consider functional disturbances of the heart as an objection to patients' living in Colorado. Aortic regurgitation and mitral obstructive lesions are dangerous conditions anywhere, but only in a late stage, when dilatation is present. H. B. Whitney[13] states that in cardiac weakness, so often found in phthisis, life is not directly endangered in high altitude. Sudden collapse and heart failure in these cases are almost unheard of, just as dropsy, apart from renal disease, and edema of the lungs from cardiac disturbance, are extremely rare in the tuberculous living in Colorado. Of his personal experience with high altitude H. McCall[14] tells us that he had suffered for 25 years with attacks of acute rheumatism which led to the production of a fairly compensated mitral affection. Great comfort had been derived by him from visiting places of from 5,000 to 10,000 feet elevation, where cardiac fatigue, depression, etc., would disappear at once.

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[4] Klimatotherapie bei Herz-u. Gefässkrankh., Mediz. Klinik, 1912, No. 19.

[5] Korrespondenzbl. f. Schweizer Aerzte, 1909, No. 4.

[6] Handbook of Climatology, Lea Bros., 1897.

[7] La Cure d'Altitude, Paris, Masson & Co., 1897.

[8] Influenza dell' altitudine sui malati del cuore. Riforma medica, xx, No. 12.

[9] Diseases of the Heart and Arterial System, N. Y., Appleton, 1903, p. 433.

[10] The Principles of Medical Climatology, in Forchheimer's Therapeusis of Internal Diseases, Appleton, 1914, vol. 1, p. 245.

[11] Cardiac Dangers in High Altitude, Amer. J. Med. Sc., 1909, p. 329.

[12] Some Erroneous Impressions which have heretofore obtained concerning the Climate of Colorado. The Colo. Climatologist, Feb. 5, 1895.

[13] The Effect of Altitude on the various conditions of the Heart associated with Pulmonary Tuberculosis. The Colo. Climatologist, Feb. 15, 1895.

[10] The Principles of Medical Climatology, in Ann Arbor, August, 1885.

Other writers could be cited in support of the above statements, but their contributions are practically of the same tenor as those already mentioned. The opposing voices, on the other hand, are rather scarce, and not convincing. It is, therefore, all the more surprising that the medical profession at large is so much opposed to high altitudes in conditions of cardiac disturbance.

It is, a priori, to be expected that in the early stages of acclimatization high altitude should even in healthy individuals create a greater demand on the heart than at sea-level. This increased demand will manifest itself in different degrees of dyspnea and cardiac palpitation, but these unpleasant features invariably disappear within a more or less short time. It is these subjective symptoms that undoubtedly form one of the main causes of the prejudice that with the years has taken hold of the minds of those who so anxiously, yet so indiscriminately, warn people with functional or organic heart disturbances to shun high altitude. N. Zuntz[15] and his collaborators have once for all demonstrated that residence in high altitude is in reality associated with but a very small increase in the output of the heart's work, and that, under physiological conditions, the heart very soon adjusts itself to this additional action. But even cases of Graves' disease, of serious forms of anemia, of tuberculosis and asthma, which are often associated with an irregular and weak heart, are seen not only to improve in high altitudes, but to continue doing well after returning to the lowlands.[16] Statistics have further shown that in high altitude a smaller proportion of the total death rate is due to heart disease than in the great cities of the coast.[17]

A diseased organ needs to be placed in such surroundings as will benefit its nutrition, and make its work as easy as possible. This, of course, also applies to a damaged heart, which will show a higher mechanical efficiency when placed under more favorable conditions of nutrition and activity. Zuntz and his pupils summarize their investigations on the physiological effects of high altitudes by stating that in the latter metabolism is exaggerated, the skin is trained to greater activity, the storing of the proteids is favored, the activity of the heart is stimulated, the respiration is strengthened, both through the medium of the increased stimulation of the nervous system, blood formation is increased, and the output of hemoglobin is also greater by from 20 to 30 per cent. All these influences must naturally increase both the action and the resistance of the heart muscle. The effects of altitude are compensated in a stronger heart by a fuller heart beat, in a weaker heart by a more frequent heart rate and a fuller heart wave. An increased velocity of the blood current in high altitudes augments the flushing of the heart tissues with nutritive material. "In the mountains", says Zuntz, "the adult reacts similarly to the growing organism in ordinary circumstances, and the saying about the rejuvenating action of a stay in the mountains thus finds in this fact its exact expression".

In recent years much stress has been laid on blood pressure findings, the value of which has undoubtedly been overestimated. "It cannot be too strongly emphasized" says Ch. S. Williamson[18] "that from a single or repeated observation of blood pressure no conclusion in regard to the functional capacity of the heart is allowable". Many physicians still believe that in high altitude the blood pressure increases simultaneously with the decrease of atmospheric pressure, and that this increase means injury to the weakened heart. According to P. Nicholson[19] the blood pressure rises at the rate of about 10 mm. to every 6000 ft. elevation, a statement which does not tally with the investigations of the majority of writers who have been interested in the subject. To mention only a few of them, Ch. F. Gardner and W. Hoagland,[20] who for more than a year measured the average blood pressure in a number of persons in Colorado Springs, at an elevation of 6000 ft., found it slightly lower than at sea-level. The same fact was established by F. E. Smith[21] in Fort Stanton, N. M., by Schneider and Hedbloom,[22] by E. C. Schneider[23] and others. The pulse-rate is almost invariably unchanged up to about 6000 ft. elevation. From 6,000 to 14,000 ft. altitude Gardner and Hoagland found the pulse-rate higher, while the blood pressure still remained reduced. Altogether the more rapid the pulse the lower they found the blood pressure. And so we see that in reality the normal pressure does not suffer any important changes even in altitudes which are higher than those where patients are usually sent for the benefit of their health.[24]

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[15] Höhenklima u. Bergwanderungen. Berlin, Bong & Co., 1904. An excellent resumé of this standard book, in English, is to be found in H. Sewall's article in International Clinics, 1906, Series 16, entitled: "Recent additions to our knowledge of the physiological influence of lowered barometric pressure."

[16] P. Schrumpf, Blutdruckuntersuchungen, etc., D. Arch. f. klin. Med., Bd. 113.

[17] Philadelphia Md. J., Feb. 10, 1900, Editorial Comment.

[18] Diseases of the circulatory system, in Forchheimer's Therapeusis of Internal Diseases, p. 558.

[19] Blood Pressure in General Practice, 1914, p. 42.

What ordinarily is referred to as blood pressure represents the difference between the absolute pressure inside of the arteries and the external atmospheric pressure. The dropping of the latter is followed by a corresponding drop in the absolute arterial pressure, and thus the blood pressure remains practically the same.[25] Numerous observations and experiments at high altitude and in low pressure cabinets have confirmed this fact. When the blood pressure has undergone a pathological change the high altitude lowers the excessive systolic and diastolic pressure, and vice versa, the result being an all-around improvement in the patient's condition. This beneficial effect manifests itself particularly in cases of hypertony due to arteriosclerosis[25], and still more in those conditions which Huchard[26] has designated as presclerosis, where the patient's complaints point to the existence of vasomotor disturbances as the cause of dyspnea, distressing palpitations, dizziness, tachycardia, headaches, etc. That patients with hypotony can also live comfortably in high altitude is, for instance, to be seen in consumptives who, generally, have a low tension pulse without suffering any serious embarrassment from this condition in high altitude.[27]

Curiously enough, in very many cases people are warned by their physicians against residing in places of high altitude on account of their alleged heart affections, whereas in reality their hearts are not at fault at all. "The profession", says James Mackenzie[28], "has been so impressed with the association of murmurs and heart failure, and diseased valves, that the great majority of heart diseases are distinguished by the noises that the heart makes, although these noises may have very little or no connection with the heart failure". According to Osler[29] and other authorities, the conditions under which a pure systolic murmur, anywhere over the body of the heart, may occur, are so numerous that this systolic bruit is practically of no account as an indication of a valvular lesion. In the same way a diagnosis of combined valvular lesions from murmurs alone must be considered as quite unsatisfactory. All these murmurs should always be judged in combination with other features.

The work of the circulatory apparatus as a whole is a very complex arrangement, and it is not always safe to declare a heart incompetent on the basis of physical symptoms alone. A number of different disturbances of the respiratory apparatus often give rise to approximately the same manifestations as certain forms of heart disease, since respiration and circulation have the same task to perform, namely to provide the tissues with the blood supply on which their activity depends, and to remove the waste products of this activity.[30] In other cases, when a heart lesion has actually been established, the resulting heart failure must not necessarily be considered as due to this lesion, but likely to the individual's attempt to do the work of a healthy man who is not handicapped by this defect. It is also worth mentioning that heart beats of only 55 to 60 or 65 in a minute are not infrequently seen in perfectly healthy individuals,[31] and that a chronic endocarditis is as a rule not an active and progressive process, but a deformity which has resulted from a past affection. The most important question in these cases is, whether the defect has been properly compensated, and whether the compensation can be adequately and permanently maintained.

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[20] Trans. Amer. Clim. Ass., xxi, 1905, p. 86.

[21] The Effects of Altitude on Blood Pressure, J. A. M. A., 1905, May 29.

[22] Blood Pressure with Special Reference to High Alt., Amer. J. of Physiology, xxiii, No. 2.

[23] D. Arch. f. Kl. Med., May 1908.

[24] See tabulated findings of P. Schrumpf, l. c., also A. Durig, Physiol. Wirk. des Höhenklimas, Wiener Md. W., 1911, p. 619.

[25] Lazarus u. Schemunski, Zeit. f. Kl. M., 1884.

[26] Maladies du Cœur, Paris, 1910.

[27] R. H. Babcock, Influence of Altitude on Heart Disease, N. Y. Med. J., 1903, August 3.

[28] The Olive-Sharpley Lectures on Heart Disease, Lancet, 1911, April 8 and 15.

[29] Wm. Osler and A. G. Gibson, Diseases of the Valves of the Heart, in Osler and McCrae's "Modern Medicine," 2nd. ed., 1915, vol. 4.

[30] Th. v. Jürgensen in Nothnagel's practice, Engl. Ed., 1908, Diseases of the Heart, p. 18.

After all, the heart, under modern conditions of life, can be considered normal in but few healthy adults, since degenerative changes in the heart often take place apart from any conspicuous lesion. A very characteristitc form of irregular cardiac activity is, according to James Mackenzie,[32] noticed in some people from middle age onward which is due to a premature contraction of either the auricles or the ventricles. The contractions are often so small as not to be perceptible in the pulse, which is then spoken of as being intermittent. As a matter of fact the great majority of these people are in no danger, the irregularity being of no great significance.

What we know by this time with sufficient certainty is, that the working power of the heart must first and last be judged by the condition of the heart muscle, and not so much by the changes at the orifices and in the valves which regulate the direction of the blood current, nor by the cardiac ganglion and the nervous system in general. Since the elementary muscle cells of the heart wall are at present given the most important part in the phenomena of the self-regulation of the heart beat, while the other constituents of the heart are considered to have merely a secondary and auxiliary significance,[33] we may safely say that the pathology of cardiac affections is the pathology of the myocardium, and that any statement concerning the prognosis in a given cardiac condition at sea-level or in high altitude must be based on this conception.

In conclusion, I hope to have succeeded in putting a damper on the sweeping opposition of a great number of physicians in regard to the compatibility of high altitude with disturbances of the circulatory apparatus. This opposition is with some so strong that they do not hesitate to hurriedly send away from Colorado many a patient with any kind of cardiac and vascular trouble, thus often depriving them of an excellent chance to recuperate, or to be saved from irremedial collapse elsewhere. In my own practice I have seen instances of this kind that have gradually taught me to be very cautious every time I was consulted as to whether a cardiac patient should be removed from Denver or left where he was. A very typical example of the injuries produced by such removal was briefly reported by me years ago,[34] and I could cite several more in corroboration of my thesis that in any cardiac affection contracted in a place of high altitude, by a native or old resident of such a place, the patient should not be allowed to leave for sea-level, and particularly not during an acute disturbance of the heart. These cases undoubtedly do far better at home than anywhere else. One of my patients with a combined and turbulent valvular affection, after having recuperated from a severe attack of disturbed compensation, went, against my warning, to the East for a pleasure trip. It was not long before her condition again became most alarming. Physicians of great repute, and acknowledged authorities in diseases of the heart, would not hear of her returning to Denver, being sure that she would die here at once. Knowing my patient better than they naturally could know her, I insisted upon her coming back at once, and the result was not far from miraculous. That happened about 15 years ago. The patient has since that time had several other attacks which, I am happy to state, were not due to any fault of Denver, and is enjoying today better health than she ever did before.

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[31] Th. Lewis, The Rate and Mechanism of the Heart-Beat, in Osler & McCrae, v. iv.

[32] Diseases of the heart, 3rd ed., London, 1913.

[33] Th. W. Engelmann, Ueber den myogenen Ursprung der Herztätigkeit, etc., Pflügers Arch., Bd. lxv, p. 535. See also S. J. Meltzer, The Neurogenic and myogenic theories and the modern classification and interpretation of cardiac arrhythmias. Med. Record, lxxv, 1909, p. 873.

[34] Mental disturbances in the course of cardiac diseases, N. Y. Med. J., 1911, July 27.

In common with the other organs of the body, the heart is endowed with a wonderful recuperative power, and with an unexcelled faculty of adjusting itself to situations and circumstances. It is my conviction that this adjustment is often given better facilities in high altitude than in the lowlands.

Of course, there are conditions of the heart which strongly contraindicate residence in high altitude, but they are not many, and should be carefully studied in each individual case before a final judgment is given.

250 Metropolitan Building.

DISCUSSION.

G. Walter Holden, Denver: I am sorry not to have heard all of Dr. Zederbaum's excellent paper, having arrived only in time to hear his conclusions.

I heartily endorse all he has said about heart affections observed at high altitudes. During my own observation in Colorado, covering a period of seventeen years, my experience has been without exception that all heart cases here run comparatively the same course that they would have run at sea level. At no time could I say that the disease was aggravated by residence here in Colorado.

Those patients coming to an elevation with mitral or aortic stenosis and regurgitant disease complicated by pleural and pericardial adhesions are bound, sooner or later, to have trouble. Yet, if they are kept extremely quiet for a long time, and their exercise and muscular movements properly controlled, they do well.

One observer goes so far as to state that heart troubles rarely originate at an elevation, but I very much doubt this. I recall four cases that came under my observation; one, a boy of eighteen who lived at an altitude of 8,000 feet, with a valvular leak following an infection. Today he is doing heavy manual labor, at the age of twenty-eight. The second case developed marked mitral incompetency at 5,400 feet elevation, and was ordered to the Pacific Coast. His trouble became aggravated, with indications of breaking compensation. Upon returning to Colorado his improvement was marked. The other two cases that occurred here established good compensation and have continued to enjoy good health for the last eight or ten years.

How often we hear of Eastern medical men advising patients coming to Colorado to break their journey two or three times en route; if they are coming from the coast, to break the journey at Chicago and again at Omaha or middle Nebraska. This is not at all necessary. I have had any number of patients making this trip come directly through without a stop, and they have arrived much less fatigued than those who broke their journey; and I have yet to see a case suffer from the altitude by making a continuous trip.

O. M. Gilbert, Boulder: I think Dr. Zederbaum's paper is most timely on this subject. We have all succeeded in exploding the bubble that existed so long as to the fatality of pneumonia at high altitude in Colorado; but we must keep on for a while to convince the laity and people outside of Colorado. We must do the same with regard to heart conditions. There are a few exceptions. Ordinarily I say to people that about ninety-eight per cent of what they hear about the serious effects of high altitude on heart disease is simply imaginary or based upon some preconceived notions, and the other two per cent is real, and one of these realities might be a mitral stenosis.

Some seven years ago Dr. Sewall called attention to the fact that cases of stenosis did not do well in Colorado, quoting particularly from Dr. Babcock of Chicago. I had paid no particular attention to the matter up to that time. I have noticed since then that I have had cases of mitral stenosis which did not do well. Dr. Sewall called attention to the fact that occasionally the patients developed symptoms of multiple sclerosis, presumably from anemia of the cord. I have seen that occur in at least one case definitely, and it was slightly suggested in another.

Just recently a case was referred to me of a woman living at an altitude of 10,500 feet. She was supposed to have tuberculosis. She had hemorrhages from the lungs, and a great deal of dyspnea. The whole thing was due to a mitral stenosis. The stimulation of the heart occasioned by high altitude is comparable to the effect of digitalis. Digitalis in moderate doses in mitral stenosis is good, but you must use it very carefully.

One of the other exceptions is that of a patient coming to this altitude with evidences of a broken compensation or a tendency toward acute dilatation. They should not come here in these circumstances because the effort at adjustment is a real one at the time. I think the work of the Anglo-American Commission on Pike's Peak two or three years ago showed some reasons for that. They showed the process of acclimatization is to a large extent one of increase in the secretory process of the alveoli of the lungs; that is, an increase in the capacity for secreting oxygen and taking it into the blood. It takes some little time for such a process to occur.

The other exception would be in some of the old arteriosclerotics. They do not adjust themselves as well to a high altitude as I think others do, yet many of them, if given time, do wonderfully. I remember very well the father of Dr. W. W. Wilkinson, who spent several months at Silverton, and who had evidences of arteriosclerosis and of coronary stenosis. He experienced some difficulty at first in adapting himself to the environment, but he lived there without discomfort, and when I saw him at Phoenix, after having removed from a specially high altitude to a low altitude, he experienced little or no difficulty. However, the danger is greater where a person has adjusted himself to a high altitude and suddenly moves to a low one.

A. S. Taussig, Denver: I believe it is high time for the physicians of Colorado to do something in regard to this question of the effect of high altitude on cardiac disease. I think Dr. Zederbaum deserves great credit for bringing up this subject and thoroughly discussing it. It is a subject that should be considered more frequently before the American Medical Association.

In Switzerland the work of the men there in high altitude has not been defensive at all; they have taken the offensive. They feel that high altitude has a distinct influence upon the heart in encouraging compensation. If there is practically any leeway the heart will do very well when the patient is subjected to a slight increase in work in going to a high altitude; and if we have a moderately good heart muscle, regardless of the character of the lesion, we are safe in saying the patient can go to a high altitude and be benefited thereby.

It seems to me that physicians in the East have not been able to form a proper idea of the influence of high altitude on account of two things; first, a lack of personal experience; and, second, our own negligence in sending cases to a lower altitude after we find a seriously damaged heart. I do not believe any man in the East can obtain an adequate idea of what high altitude will do in cardiac cases. On the other hand, we have been delinquent in sending cases to a lower altitude who have lost all chances at this altitude. We have made the same mistake in cardiac trouble that the eastern physicians have made in regard to pulmonary trouble, sending patients here in the last stages of the disease. Physicians there have not been able to form a good judgment on this subject and it behooves the physicians in Colorado to try to instruct them. We have to form our individual judgment on each case that is sent to us. We have had cases that should have done well, but have done poorly, and we cannot send these patients to a lower altitude with benefit to them. When it comes to the question of altitude we cannot always form a correct judgment. We must wait and watch and not be too hasty about sending patients to a lower altitude on the slightest sign of cardiac instability.

A. Zederbaum (closing): The fact that cases of heart disease acquired in a high altitude, as established by statistics gathered in Switzerland, are comparatively very few even in those places where acute and chronic rheumatism are frequent, appears to me a convincing argument in favor of the protecting influence of high altitude climate on the cardiac apparatus. There are, in my estimation, only a few pathological conditions of the heart which do not well bear the climate of high altitudes. Arteriosclerosis, with the exception perhaps of coronary sclerosis, is decidedly not among them. I rather believe that cases of that kind should be encouraged to remove to a high altitude resort where the lowered atmospheric pressure makes the work of the heart easier under the circumstances. Compensated valvular lesions and early stages of myocarditis almost invariably do better in high altitude than at sea level. Cases of regurgitant disease of the heart complicated with aortic and mitral stenosis are generally considered to be unsuitable for residence in high altitude. Yet we know that even these cases not seldom remarkably adjust themselves to a high altitude, to the astonishment of the physician who had anticipated the opposite result on his patient's condition.

TRIUMPHS OF PREVENTIVE MEDICINE.*

J. W. AMESSE, M.D., DENVER.

At a time when, among countless millions, the finer impulses of humanity are paralyzed, and civilization itself is on the rack, it seems peculiarly fitting that we, who have thus far been spared by the tempest of international strife, should not only endeavor to appraise dispassionately our material resources but should also feel the tremendous responsibility of keeping aglow the fires of arts and sciences, of education and research.

Hitherto we have received in abundance; now we must give unstintedly. The world-horror which has burst upon us stimulates alike individual and governmental introspection. We note our frailties more promptly; we estimate our virtues less extravagantly. I shall leave to more competent hands the task of determining our preparedness for physical combat, while undertaking the more pleasant duty of assembling evidence to fortify our claims in a sphere where bullets never penetrate.

In this hour of turmoil and racial rancor, one finds the questions constantly returning: Wherein has science made human life more tolerable? Is life more full, and death more remote than obtained with our forebears in the most distant past? However much the cynicism of the moment may permeate our councils we can not afford to underestimate the progress of the humanities in the age in which we live.

Chief among the agencies which have contributed in the last few decades to the comfort and happiness of man has been the doctrine of conservation—the safeguarding of all those assets which constitute national efficiency. Thus we find enactments of national and state governments directed toward the preservation of our forests, our mineral resources and our water supplies. But while these challenge the thoughtful interest of every citizen, it is in the conservation of life, our most precious asset, that our higher efforts are expended. The attitude of the public in medical affairs has so changed within the past few years that a new conception of the physician and his duties seems assured. "The modern physician aims to prevent diseases which are preventable, and treat curable diseases while they are curable." (Vaughan.)

Disraeli, in one of his memorable addresses, expressed the opinion—a novel one indeed in his time—that "public health is the foundation on which reposes the happiness of the people and the power of the country". John Selden amplified this view of the great statesman when he wrote: "It is an axiom of the great that 'The State is all of us', and from that we take the corollary 'The greatest good to the greatest number'. The function of the State is, therefore, the welfare of the people—not alone material, striving to regulate by the machinery of law their commerce; not alone spiritual, directing the thoughts of men to the things not of this earth; but equally important are the things pertaining to the public health and the physical well-being—teaching men to lead healthful, wholesome lives and thereby transmit to their children and their children's children the strength and virility of sturdy manhood and womanhood".

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*Read before the Colorado Scientific Society, Denver, April 3, 1915.

These sentiments are now invading our complex life so thoroughly that the ethical standard of a community may soon be judged by its death rate—municipal health being a purchasable commodity.

In the light of these encouraging signs of the times, let us review the achievements of hygiene, the newest and most productive offspring of rational medicine.

Yellow Fever.

Perhaps the most interesting chapter in the history of preventive medicine is the story of the control of yellow fever. It reads more like a romance than a calm statement of biologic discovery. From the time it was imported into the Antilles with slave cargoes from West Africa yellow fever was endemic on the Spanish Main, with Havana as the chief focus. From this point epidemics have gone out periodically to terrorize and destroy. Our southern states sustained a loss of 100,000 lives in the nineteenth century, half a million further cases ending in recovery. The death rate in Mexico and Central and South America can only be approximated, but it must have been enormous. In Havana, 25,000 deaths were recorded; in Rio de Janeiro 37,000. The disease was conveyed to Europe, where devastating epidemics occurred in Spain, Italy, Portugal and Greece. It is not generally known, even among physicians, that yellow fever claimed 130,000 victims in Spain alone between 1800 and 1821. Not only the sickness and death attending these visitations, but the terror they inspired and the economic losses sustained, combined to place this disease among the most dreaded in history. We may rightly conclude, then, that first among American medical conquests stands the solution of the yellow fever problem by the famous Army Commission composed of Major Walter Reed, Lieutenant James F. Carroll, Lieutenant Jesse Lazear and Dr. Aristides Agramonte. From the time when this and every other plague were attributed to divine wrath, or, as Sydenham says, "to a malignant constitution of the atmosphere", the views of competent observers had suffered constant change and had been the subject of the most acrimonious discussion. Even such men as Benjamin Rush, who expressed belief in the miasmatic origin of yellow fever, were often presented with indubitable proof of its epidemic spread when introduced into salubrious regions, entirely free of so-called miasms, and its rapid dissemination aboard ship seemed to provide conclusive evidence of its communicability. The coincident plague of mosquitoes in time of epidemics was also noted by Rush as early as 1804, and later by a score of other writers, but it was not until 1881 that Carlos Finlay of Havana advanced the idea that the mosquito was the intermediate host and the only factor in the transmission of yellow fever. Finlay was, however, unable to prove this theory.

Recognizing the strong analogy between the propagation of yellow fever and the spread of filariasis, which a few months before had been shown to be carried exclusively by a certain species of mosquito, the Army Commission began their work at Havana with a thorough investigation of Finlay's hypotheses. In an exhaustive series of experiments, during which a number of volunteers, including Dr. Lazear, died, the theory was proven entirely tenable. Havana, Vera Cruz, New Orleans, all were freed of infection through its surprising postulates. Yellow fever must now be considered as "a disease produced in individuals of certain races by a two-host microscopic, perhaps ultra-microscopic germ, endo-parasite of the female of a particular species of mosquito, the Stegomyia calopus". (Finlay.)

The work of the Reed Commission has been followed by the practical extinction, in thirteen years, of one of the most terrible afflictions of mankind. From Welch's eloquent tribute to Reed, I quote the following: "The discovery which he made is peculiarly American; his service to man has been paralleled in only one or two instances; it was an admirable, a classic piece of scientific investigation, second only to the discovery of the control of smallpox by vaccination."

The bronze tablet on his tomb overlooking the Potomac River bears this cherished line from President Eliot: "He gave to man control over that dreadful scourge, yellow fever."

Malaria.

If a layman were asked which disease, among the thousand disorders that now afflict mankind, was responsible for the most acute distress and misery, the highest total mortality, the greatest disability and the heaviest loss of efficiency, he would undoubtedly name tuberculosis or pneumonia, or possibly some one of the chronic disorders such as heart disease or Bright's. It will surprise many, therefore, to know that the Captain of the Men of Death, since the world began, is malaria. It is difficult to realize, in this salubrious climate, the tremendous losses that have been sustained in the past through this world-old and world-wide pest.

Important chapters recently added to medical history seem to prove conclusively that the civilization of Greece was undermined far more through the devastating effects of this plague than through political corruption and social vice. Caravans and ships fetching slaves from Africa, gradually encroached on a territory heavily infected with malaria. The same agencies brought to Greece the mosquito responsible for its spread, and foci of the disease were thus promptly disseminated throughout the empire.

To the Greek, quinin was unknown. "He had not heard of the lands where even then Nature was elaborating her first great specific. The philosophy of Plato, the wisdom of Socrates, the plays of Aristophanes, the laws of Pericles nor the science of Aristotle could save the nation from the debilitating effects of the fever, and under its withering touch the civilization of this great people slowly but surely decayed. Its matchless marbles were thrown into the waste heap; its magnificent temples allowed to crumble; its altars were deserted; its literature became puerile; its philosophy lost its virility, and Greece sank into the semi-barbarism from which even now, more than twenty centuries later, it has not completely emerged". (Vaughan).

Undoubtedly the fate of Rome, with its Pontine marshes and its overwhelming infection, was hastened by the same insidious foe, and the progress of mankind thus retarded through the centuries, down to our own generation. In the tropics and subtropics especially, but frequently invading deeply into the temperate zone, it has remained the one constant menace to life and health.

Now what has science done to conquer malaria? The first link in the chain which now binds this monster affliction was forged, of course, with the discovery of cinchona bark. In 1638 the Countess of Cinchon, wife of the Viceroy of Peru, after nine years' residence in that country, was seized with tertian malarial fever. Don Lopez de Canizares, the Corregidor of Loxa, learning of her illness, sent a parcel of the bark of a tree called by the Indians "quina-quina", the duplication of the name indicating that it had medicinal properties. Just how these natives became familiar with the use of the bark is not known, but many purely fanciful tales were extant at the time. Dr. Don Juan de Vega administered the drug to the Countess, who quickly recovered, and on returning to Europe four years later she brought with her a large supply of this potent medicine which she distributed to persons suffering from fever on her estates in Spain. In 1670 Jesuit missionaries sent some of the bark to Rome, whence it was distributed throughout Europe by Cardinal de Lugo. From this we derive the popular name, "Jesuits' bark". A controversy at once arose, quite naturally, as to its merits, but the efforts of Morton and Sydenham, together with the dramatic cure of the Dauphin, established the new treatment on a solid basis.

The next step in the control of malaria was the discovery of the causative organism, in 1880, by Laveran, a French army surgeon working in Algiers. This parasite belongs to the protozoa, unicellular animals belonging to the sporozoa, and is commonly known as the plasmodium of malaria. For twenty years, following the announcement of Laveran, this parasite was studied under various conditions in every part of the world and its life history in man was completely elucidated. But how did the plasmodium gain access to the blood stream? The very name, malaria, indicates the tenacity with which the laity and even members of the medical profession clung to the theory that it was produced by poisonous emanations from marshy land. The gap in our knowledge was filled by the epoch-making researches of Major Donald Ross of the British Medical Corps. Following a suggestion of Sir Patrick Manson that the mosquito might be the intermediate host, Ross proceeded to India, where ague is more prevalent probably than anywhere else in the world except equatorial Africa, and after years of patient effort was able to demonstrate that the parasite of malaria is transmitted by mosquitoes of the species Anopheles. Italian observers immediately confirmed this discovery and proved that the Anopheles alone, of the many hundred varieties of this insect, can convey malarial infection.

It was this knowledge which enabled General Gorgas to free the Canal Zone from its ancestral plague and make this monument to engineering genius possible. Equipped with this information and the facts regarding the propagation of yellow fever, the French would unquestionably have been successful and our present commanding position in world politics be long deferred. Gorgas developed a system of restrictive measures in Cuba and Panama so thoroughly effective that we may now say with every confidence that no matter how badly a region may be infected, or how difficult local conditions may make the application of prophylaxis, some plan can be adopted which will result in the abolition of malaria. For example, during 1906, nearly seven per cent of the entire working force on the canal entered the hospital each month suffering from malarial fever, while in 1912 there was less than one per cent so affected. In the U. S. army the rate of admission has been reduced, in the same period, from 365 per thousand troops to 25 per thousand. It may be of interest to briefly describe these antimalarial measures, which have affected even the geography of the earth.

1. The larvae of the Anopheles within 100 yards of every dwelling are destroyed by draining the water containers, oiling the surface of collections too large to be drained, or planting minnows which devour the larvae as fast as they are hatched.

2. Destroying all protection for adult mosquitoes within the above area. This is effected by cutting away the grass, shrubs and small trees.

3. Screening habitations and, especially, providing netting to enclose the beds.

4. The use of quinine, usually in 3-grain doses, once or twice a day.

This conquest of the tropics has come about so quietly that few realize its far-reaching import. Half a world, hitherto closed to the white man, is now thrown open for his innumerable enterprises. The mortality in many of its cities is now far below that of Denver, and Havana, formerly the mother of plagues, has become a notable health resort.

Consumption.

No discussion of state medicine would be complete without the consideration of pulmonary tuberculosis, the most ubiquitous, and, next to malaria, the most destructive disease of mankind. In its various manifestations this great plague was responsible in the year 1912, in the United States alone, for 150,000 deaths. This tremendous amount of preventive mortality emphasizes the appalling problem which faces us in our efforts to secure some measure of control. In spite of the fact, however, that there are probably ten living cases for each death recorded, making a total of one and a half million consumptives in this country at this time, there is abundant evidence at hand to show that the incidence of the disease among our people is diminishing. In a report on the tuberculosis death rate recently presented by Frederick L. Hoffman, statistics gathered from all available sources are tabulated "to sustain the far-reaching conclusion that the mortality from consumption has actually as well as relatively, diminished during the last thirty years". In the year 1900, for example, the mortality rate per 100,000 of population was 180. In 1910, it had dropped to 138. The aggregate mortality for those ten years, in the United States, was estimated at 1,324,723. "If, however, the rate of 180 prevailing in the year 1800, had been maintained during the entire decade, there would have been 1,559,159 deaths from pulmonary tuberculosis, or 234,436 more than actually occurred. These lives may justly be considered as saved through our broader grasp (1) of the natural history of the disease and (2) of the means of prevention. From the census reports of the federal government we deduce the encouraging fact that while the mortality in New York, Philadelphia and Boston, between the years 1812 and 1821 was 418 per 100,000 persons, it had dropped to 180 in these cities in 1912. This saving in human life is, of course, of tremendous importance from an economic viewpoint, but, as Hoffman remarks, "the real gain is not measured alone in this form. The real triumph of the campaign against tuberculosis, in its final analysis, is the human factor, representing on the one hand the faith and work of those who, by intelligent cooperation and indefatigable industry, have reduced the warfare against this disease to a science, and, on the other, the immeasurable amount of happiness brought to the countless homes and hearts of those who, but for the success which has been achieved, would have had but sorrow and suffering, and would have faced the future in helpless despair".

In the marvelously directed fight against consumption, we may note the federal inspection laws at immigration stations providing for deportation of the infected; the regulations controlling the inspection of meats; the pure food laws, and the activities of the Public Health Service. On the part of states and cities we have the improvements in housing; in factory and workshop hygiene; the ordinances providing for the inspection of dairy cattle; the notification and registration of cases; disinfection of infected premises; industrial insurance; district nursing; free clinics and dispensaries; the segregation into model sanitaria and the education of the public in personal prophylaxis. All of these sociological efforts must attend the purely medical management, if we expect to limit the ravages of consumption. That they will rather be increased in efficiency is amply attested by the growing belief everywhere that this is an entirely preventable disease and that, as Pasteur affirmed, "it is within the power of man to banish all bacterial diseases from the earth".

Bubonic Plague.

Turning now from the white plague to the black, we find that one of the oldest and one of the most destructive epidemic diseases of man has been shackled through recent scientific research.

Bubonic plague has ravaged the human race since biblical times, coming out of Asia Minor, its endemic home, in pandemic form during the fifth, the thirteenth and twice in the seventeenth centuries. On the last two occasions Europe was overrun, England was invaded, and the loss in life was estimated at more than twenty-five million. In 1894, another outbreak began in China, soon spreading to India, Japan, the Philippines, and finally, through the medium of shipping and along the routes of commerce, it established foci in many parts of the western world. In Glasgow, Oporto, Liverpool, Rio de Janeiro, Honolulu and San Francisco, limited areas of infection were found. It was restricted through hygienic measures, in civilized communities, to a few hundred deaths, while in Bombay Presidency, India, where medieval conditions still exist, there were over 1,000,000 deaths each year from 1859 to 1901. Then, as in previous outbreaks, it subsided, to reappear unquestionably in the near or distant future. This proves that the plague has lost none of its virulence. It is still the dreaded Black Death until stayed and smothered by the hand of medical science. Read the following from Daniel Defoe's "Memoirs of the Plague", in London, written as an account of the awful visitation of 1665:

"The face of London was now indeed strangely altered—I mean the whole mass of buildings, City, liberties, suburbs, Westminster, Southwark, and altogether; for as to the particular part called the City, or within the walls, that was not yet much infected; but in the whole, the face of things, I say, was much altered; sorrow and sadness sat upon every face; and though some parts were not yet overwhelmed, yet all looked deeply concerned; and as we saw it apparently coming on, so every one looked on himself and his family as in the utmost danger. Were it possible to represent those times exactly to those who did not see them, and give the reader due ideas of the horror that everywhere presented itself, it must make just impressions upon their minds, and fill them with surprise. London might well be said to be all in tears; the mourners did not go about the streets, indeed, for nobody put on black, or made a formal dress of mourning for their nearest friends; but the voice of women and children at the windows and doors of their houses, where their dearest relations were perhaps dying, or just dead, were so frequent to be heard, as we passed the streets, that it was enough to pierce the stoutest heart in the world to hear them. Tears and lamentations were seen almost in every house, especially in the first part of the visitation; for, towards the latter end, men's hearts were hardened, and death was so always before their eyes, that they did not so much concern themselves for the loss of their friends, expecting that themselves should be summoned the next hour''.

What has given us control of this formidable scourge? First, Kitasato and Yersin, working independently, discovered in 1894 the bacillus pestis, shown, by experimentation and inoculation into animals, as well as through the constant presence in the blood and tissues of human cases, to be the biologic cause. Then it was found that plague is primarily a disease of rodents, and is spread to man only through the agency of the flea which inhabits the coat of rats. The British India Commission, after months of study in the investigation of every other possible source, came to the conclusion in 1907 that in rat extermination alone we have the keynote of prevention. Thus San Francisco, New Orleans and San Juan, Porto Rico, have recently been cleared of the disease, through the ratproofing of buildings, the proper disposal of garbage and the extermination of rodents by trapping, shooting and poisoning—in other words, through intelligent sanitation.

Typhoid Fever.

As a sanitary problem of the first magnitude, typhoid has received probably the most intensive study accorded any disease in this latitude. In mortality it has, until recently, stood fourth, the total deaths in the United States from this cause being 25,000 annually, with 225,000 patients recovering. If one considers a moment the economic loss this represents, amounting to at least $100,000,000 annually, not to mention the higher elements involved, he will appreciate more fully the transcendent value of the preventive measures now being inaugurated.

For at last this widespread disease, which so commonly attacks the young and vigorous, has been placed on the list of wholly preventable affections such as smallpox and yellow fever. Here we find investigators from Germany, England and America adding their accumulated evidence in preventive inoculation. As far back as 1896, Pfeiffer and Kolle began among volunteers the injection of dead cultures of the typhoid bacillus.

Sir Almroth Wright then introduced the procedure into India, where he inoculated 4,000 British soldiers, and in 1900, during the Boer war, he and Leishman inoculated fully 100,000 troops. English results in India were fairly satisfactory, but in South Africa were very disappointing. The medical officers of our own Army then took up the work and carried it to signal triumph. By using less heat in killing the bacilli used for vaccines, and employing larger and more frequent dosage, the method has developed from the experimental stage to an assured position as a powerful, dependable specific. The vaccine now used in this country is made from a 24-hour culture, killed by heating to 60° C. for one hour. The suspension of these dead bacilli is then standardized with normal salt solution, so that 1 c.c. represents about 1,000,000,000 bacteria. The injections are given ten days apart, three in number, and usually into the subcutaneous tissue of the upper arm. The first injection measures ½ c.c., the two others 1 c.c. each.

The aim of this vaccination is to produce in the healthy body the development of those vital elements (known as anti-bodies) which are responsible for the neutralization of the poisons elaborated during an actual attack of typhoid fever.

The immunity thus induced continues for a period of two or three years, after which further inoculation should be considered. The first opportunity to give this specific a proper trial came with the mobilization of our troops near the Mexican border in 1911. The division had a mean strength of 12,800 men. All were treated with the typhoid vaccines. From March 10 to July 10, only two cases of typhoid developed, one in the person of a private who had had but two inoculations and whose infection was very mild, and the other in a teamster who had not been inoculated at all. Contrast this with the record of a similar body of men encamped under identical conditions, at Jacksonville, Fla., in 1898. This division had 2,693 cases with 248 deaths. Of 100,000 men encamped in our southern states in the Spanish-American war, over 20,000 contracted typhoid. Among 80,000 young men, in the most susceptible period, and quartered in many parts of the world, there were in 1913 but two cases of this disease, with no deaths. In the United States navy, among 50,000 men scattered through the seven seas, there were but six cases.

Every army, except that of England, now has compulsory inoculation, and most of the British troops are voluntarily receiving it. The subjugation of typhoid and its final extinction may be foreseen from these reports. There is no reason whatever to confine this certain and harmless preventive to the military forces. If all persons between the ages of 10 and 45 were to avail themselves of this prophylactic, enteric fever would soon be as rare in the United States as smallpox is in Germany, where compulsory vaccination has rendered the latter disease a medical curiosity.

(Continued next month.)

News Notes

Dr. S. R. McKelvey, on behalf of the State Board of Health, has been taking measures to deal with an epidemic of impetigo contagiosa which has broken out in the vicinity of the Denver and Jefferson county line near West Colfax Avenue. More than fifteen cases were discovered.

No further information has been obtained as to the whereabouts of Dr. Samuel S. Miller, of Meade, Colorado, who disappeared on September 6th.

Dr. W. A. Jolley, chairman of the Boulder chapter of the American Red Cross Society, was still in Belgrade when heard from about the end of October. He had been in Belgrade nearly six months, and had planned to leave for home about October 1st; but his stay in Europe was continued several weeks by order of his superiors.

Dr. Edgar Hadley has sold his hospital at Telluride, and expects shortly to locate in Montrose.

Dr. Ross C. Whitman addressed the Boulder Scientific Society on the "Causes of Disease" on October 25th.

Dr. James A. McLaughlin, formerly of Minneapolis, Minn., has purchased the office fixtures and equipment of the late Dr. Bartelt at Lamar.

The death of Dr. E. C. Rivers by drowning on October 24th came as a great shock, not only to the physicians, but also to many other inhabitants of Denver and the state. Although his body was found after a prolonged search, the exact circumstances under which he met his death will remain forever a mystery.

Dr. Perry Jaffa, aged 26 years, a resident of Trinidad, died in Denver on November 2nd. He graduated from the Gross Medical College in 1900, and had been at Trinidad since that time. His death was due to gall stone disease, with which he had been more or less troubled for many years.

Dr. F. P. Gengenbach gave an address on the "Food Problem" before the Mothers' Congress in Denver on November 2nd.

Dr. J. B. Crouch has been appointed one of the staff physicians at the Modern Woodmen Sanatorium at Colorado Springs.

Officers of the medical reserve corps of the United States Army are organizing an association school to study correspondence courses which have just been authorized by the War Department. These courses will cover a period of four years.

Dr. J. J. Youtsey, aged 76 years, and stated to be the first physician in northern Colorado, died on October 14th on his farm seven miles east of Loveland.

The wife of Dr. J. E. Ford, of Loveland, was almost instantly killed on October 13th by the accidental discharge of a shot-gun which her husband was carrying. Dr. Ford and his wife were watching for ducks at Buckingham Lake, near Loveland, and they were within fifteen or twenty feet of each other when the accident happened.

Dr. Florence Fezer, graduate of the medical Department of the University of Colorado, and for two years interne at the Denver City and County Hospital, has located in Fort Collins.

(Continued on Page 348.)

Minutes of the House of Delegates of the

Forty-fifth Annual Meeting of the Colorado State Medical Society

Held at Denver, October 5, 6, and 7, 1915

First Meeting of the House of Delegates, October 4, 1915

The House of Delegates met at the Albany Hotel, and was called to order at 8:35 p. m. by the President, Dr. George B. Packard, of Denver.

The Secretary called the roll and announced a quorum present.

The President announced the following reference committees:

Committee on Reports of Officers—R. W. Arndt, C. A. Ringle, C. O. Giese.

Committee on Reports of Committees—H. G. Wetherill, M. J. Keeney, H. A. Smith.

Miscellaneous Business—W. W. Crook, T. E. Carmody, Charles Howard.

Committee on Appropriations—C. E. Edson, H. A. Black, F. W. Lockwood.

The reading of the minutes of the 1914 session was called for.

The Secretary stated that the minutes had been published in the October, 1914, number of Colorado Medicine, and he would therefore move that they be adopted as printed in that issue without being read.

Motion seconded and carried.

The Secretary presented his report, which was referred to the Reference Committee on Reports of Officers.

The report is as follows:

ANNUAL REPORT OF THE SECRETARY.

Pueblo, Colo., Oct. 1, 1915.

To the President and House of Delegates of the Forty-fifth Annual Meeting of the Colorado State Medical Society:

Gentlemen:—In this, my first annual report as your Secretary, I have the honor to present the following:

During the year Garfield County Medical Society has been reorganized, and Bent County instituted.

There are some localities where societies should be reorganized, and others where new societies could be instituted. In this connection I would respectfully suggest that an appropriation be set aside, to pay a per diem and the expenses of one of our members as organizer, to be used at the discretion of the Secretary during the coming year.

Unless the spirit of the law is to be carried out to the letter (Chapter XI, Sec. 1), I would respectfully suggest that a new by-law be created setting a time for the apportionment of delegates in the various constituent societies.

A by-law should be drawn covering the status of honorary members who are not paid for by their own societies with respect to membership in the A. M. A. and their subscription to Colorado Medicine.

The incidental appropriation should be enlarged this coming year, owing to the necessity of printing and additional new files.

I would suggest that the minutes of this Society, as far back as possible, be taken from Colorado Medicine, bound and placed in the hands of the Secretary.

I have been asked what is the attitude of the State Society towards the ridiculously low fees offered its members by insurance companies and the State of Colorado under the Workmen's Compensation Act. I have been unable for want of authority to decide this and have suggested it would be brought before you by me at this meeting. It is a matter of grave import, and I trust you will give it due and proper consideration by referring it to an appropriate committee.

It appears to be impossible to secure fulfillment of Section 8, Chapter XII of the by-laws, in particular that portion which refers to "non-affiliated, legally qualified physicians", and I would ask that some action be taken upon the matter.

I believe prorating the annual dues for reinstatement, after the 1st of October, would materially increase our membership, and suggest it be given due consideration.

This Society has received an invitation from the Medical Society of the Southwest to join said medical society, and this invivtation is hereby referred to you.

The following statement shows the membership of the constituent societies and the moneys collected:

Reinstatements, 1914—

Society.	Members.	Collections.	
Fremont	1	$ 3.00	
Mesa	2	6.00	$ 9.00

Paid, 1915—

Society.	Members.	Collections.	
1 Bent County	6	$ 18.00	
2 Boulder County	49	147.00	
3 Crowley County	7	21.00	
4 Delta County	11	33.00	
5 Denver City and Co.	298	894.00	
6 El Paso County	81	243.00	
7 Fremont County	22	66.00	
8 Huerfano County	7	21.00	
9 Garfield County	14	42.00	
10 Lake County	18	54.00	
11 Larimer County	18	54.00	
12 Las Animas County	26	78.00	
13 Mesa County	24	72.00	
14 Montrose County	14	42.00	
15 Morgan County	9	27.00	
16 Northeastern Colo.	14	42.00	
17 Otero County	16	48.00	
18 Prowers County	11	33.00	
19 Pueblo County	58	174.00	
20 Routt County	9	27.00	
21 San Juan County	5	15.00	
22 San Luis Valley	22	66.00	
23 Teller County	13	39.00	
24 Tri-County	9	27.00	
25 Weld County	27	81.00	
	788		2,364.00

From Editor of Colorado Medicine—		
Dec. 1, 1914	$ 143.98	
Jan. 30, 1915	99.98	
May 29, 1915	201.94	
June 5, 1915	4.44	
Sept. 21, 1915	207.46	
Sept. 23, 1915	22.00	679.80
Refunds from Editor of Colorado Medicine for Electrotypes—		
Dec. 1, 1914	28.00	
May 29, 1915	1.50	
Sept. 21, 1915	5.40	
Sept. 23, 1915	8.94	43.84
		$3,096.64
Turned over to Dr. W. A. Sedwick, Treasurer		3,096.64

Respectfully submitted,
CRUM EPLER, Secretary.

The Treasurer, Dr. W. A. Sedwick, presented his report, which was referred to the Auditing Committee.

ANNUAL REPORT OF THE TREASURER, SEPTEMBER 9, 1914, TO OCTOBER 5, 1915.

Receipts.

Balance on hand Sept. 9, 1914	$2,630.74	
Received from Secretary through dues	2,373.00	
Received from Secretary through Journal	679.80	
Through refunds "Colorado Medicine"	43.84	
Interest earned	66.22	$5,793.60

Disbursements—Journal Maintenance.

1914.		
Oct. 7—Western Newspaper Union, September edition	$ 125.65	
Oct. 24—Western Newspaper Union, October edition	145.35	
Dec. 5—Western Newspaper Union, November edition	168.82	
1915.		
Jan. 5—Western Newspaper Union, December edition	129.15	
Jan. 20—Western Newspaper Union, January edition	123.05	
Feb. 23—Western Newspaper Union, February edition	119.95	
March 22—Western Newspaper Union, March edition	138.20	
April 21—Western Newspaper Union, April edition	120.20	
May 24—Western Newspaper Union, May edition	119.95	
July 5—Western Newspaper Union, June edition	125.95	
Aug. 4—Western Newspaper Union, July edition	136.10	
Aug. 25—Western Newspaper Union, August edition	118.30	
Sept. 24—Western Newspaper Union, September edition	131.94	$1,702.61
Denver delivery of Journal, Sept., 1914, to Sept., 1915		32.50
Sept. 14, 1914—Postage, W. H. Harrison, postmaster	15.00	
July 13, 1915—Postage, W. H. Harrison, postmaster	20.00	35.00
Western Press Clipping Co., Sept., 1914, to Sept., 1915		26.00
Jan. 7, 1915—Printing advertising contract "Colorado Medicine"		6.25
		$1,802.36
Oct. 12, 1915—A. S. Carter, Rubber Stamp		1.40
July 6, 1915—Carson-Harper Co., stationery, Dr. Crisp, editor		15.25
Dec. 5, 1914—Salary, Dr. W. H. Crisp, editor, 4 months' service to Dec. 15th	$ 100.00	
June 1, 1915—Salary, Dr. W. H. Crisp, editor, 5 months' service to May 15th	125.00	
Sept. 22, 1915—Salary, Dr. W. H. Crisp, editor, Sept., 1914, and balance 1915	100.00	325.00
Total for Journal maintenance		$2,144.01

Library Appropriation.

1914.		
Oct. 24—G. Stechert & Co.	$ 29.50	
Dec. 5—Clement R. Troth	12.60	
1915.		
Feb. 8—Western Newspaper Union, printing library lists	20.07	
Feb. 16—D. Appleton & Co.	26.25	
Mar. 16—D. Appleton & Co.	6.00	
April 10—Cleveland Press	7.00	
April 10—P. Blakeston's Son & Co.	1.24	
April 10—Clement R. Troth	4.05	
May 24—Clement R. Troth	16.20	
July 6—Clement R. Troth	5.40	
July 7—Paul B. Hoeber	12.60	
July 13—The Blanchard Co.	1.80	
July 29—C. R. Troth	4.50	
July 29—Paul B. Hoeber	12.38	
Aug. 9—D. Appleton & Co.	9.68	
Sept. 11—F. A. Davis Co.	30.00	$ 199.27

General Expenses.

1914.	
Sept. 9—Expenses of Dr. Noguchi, invited guest	$ 125.00
Sept. 10—William Whitford, stenographer, part payment, reporter Annual Convention, Boulder	50.00
Oct. 12—John A. MacDonald, transcript eye, ear, nose and throat section, Boulder meeting	30.00
Oct. 24—William Whitford, stenographer, balance in full, reporter Annual Convention, Boulder	117.00
1915.	
Sept. 22—Rock Island System, transporting stenographer, state meeting, Denver	22.71
Sept. 30—William Whitford, stenographer, advance on reporting Denver meeting	50.00

Legislative Appropriation.

1915.	
Feb. 24—Western Newspaper Union, folders and postage	18.50
Mar. 22—Western Newspaper Union, 100 reprints	2.60
Mar. 22—Dr. J. W. Amesse, mailing reprints	1.00
April 5—Majestic Multigraphers, multigraphing	3.25

Aug. 19—Columbian Photo Supply Co., lantern slides.....	9.10	$ 429.16
Incidentals and Sundries.		
1914.		
Oct. 8—Dr. Crum Epler, secretary, crating cabinet......	$ 3.00	
Expenses to Pueblo.........	2.97	
Stamped envelopes, etc.....	42.40	$ 48.37
Oct. 12—Ellingsworth Printing House, 200 orders for Treasurer	1.75	
Oct. 19—Riverside Printing Co., envelopes stamped, Drs. Packard, Epler, Sedwick...	5.50	
Nov. 4—Riverside Printing Co., letterheads. Drs. Packard, Epler, Sedwick	13.75	
Dec. 11—Haines Book Store, sundries for Secretary....	7.25	
1915.		
Jan. 5—Royce-Clark Printing Co., change of address....	5.00	
Mar. 9—G. W. Todd Co., Protectograph (Treasurer) ...	29.50	
May 12—Dr. C. Epler, Secretary, sundries	4.43	
June 11—O'Brien Printing Co., postcard (Dr. Rodman)...	8.50	
July 2—Dr. C. Epler, sundries.	1.30	
Sept. 30—O'Brien Printing Co., programs state meeting...	60.00	
Sept. 30—O'Brien Printing Co., incidentals state meeting..	9.00	
Sept. 30—Haines Book Store, sundry stationery supplies	1.70	
Sept. 30—Straub Trunk Co., suitcase for supplies......	3.25	
Sept. 30—Dr. C. Epler, incidental sundries	4.51	$ 203.81
Secretary.		
Feb. 11—Dr. C. Epler, salary, first half	$ 100.00	
Sept. 22—Dr. C. Epler, salary second half	100.00	$ 200.00

The report is as follows:

Cash balance forward................................	$2,630.74
Received during year..................................	3,162.86
Total	$5,793.60
Disbursements	3,176.15
Cash balance	$2,617.45

Respectfully submitted,

W. A. SEDWICK, Treasurer.

Dr. L. H. McKinnie presented the following report as Delegate to the American Medical Association, which was referred to the Reference Committee on Reports of Committees:

REPORT OF THE DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

Colorado was represented at the 1915 meeting of the American Medical Association in San Francisco by her two delegates, L. H. McKinnie and H. R. McGraw.

While this meeting was comparatively small in number of Fellows attending, the meeting could be classed as very successful. The entertaining was good, the interest manifested in the papers exceedingly good, and the people throughout California were very much interested in all of the public meetings. The building at the San Francisco Civic Center is ideally constructed to conduct meetings, one large hall being capable of accommodating all of the scientific exhibits, information bureaus, postoffice, and everything to do with that part of the meeting. Numerous halls surrounding this large room accommodated all sections, every exhibit and the House of Delegates and committees having separate rooms under one roof.

The first order of business in the House of Delegates is the hearing of the report of the Standing Committees. The Board of Trustees report the Society in exceedingly good condition, everything under their management being in good financial as well as scientific condition. The various journals are meeting with very great success. The medical advertising bureau has been of great service to state journals. Under the management of the Board of Trustees there has been placed an exhibit in regard to health conservation at the Panama-Pacific International Exposition. This is exceedingly good, calling attention in various ways to the work which has been done along the line of exposing the fakes and untruthfulness in patent medicines. At this time the Association has only a comparatively few lawsuits on hand which have been brought by various manufacturers of nostrums for libel.

The Judicial Council's report was very long and has been published in full in the American Medical Association Journal. Some of the things of interest in this report are the workmen's compensation laws and the effect these laws will have upon the medical profession. The report goes into detail as to compulsory sickness insurance, old age insurance, provision for widows and orphans, and maternity insurance. This Committee has made a study of the working of the various laws in some of our states and in many of the European nations, especially the problems which have been met by England, Denmark, Germany and Italy.

In the report of the Council on Health and Public Instruction, the principal things covered were the investigation of present public health conditions and the question of public education in regard to medical matters. This was conducted largely through the Press Bulletin, this periodical being mailed to approximately all periodical publications. Forty-five per cent of these publications requested that the Bulletin be continued, as they considered it of value to them in their editorial work.

During the past year approximately twenty thousand people were reached through the Speaker's Bureau and a large amount of good has been accomplished in this way. A great many pamphlets have been sent out on various medical subjects of interest to the general public. Federal and state legislation has been watched, and various good laws have been passed through the influence of this Council.

Under this Council a committee on cancer published quite a number of pamphlets which were mailed to any inquirers wishing information upon that vital subject. There is a committee from this Council cooperating with the National Education Association which is doing good work, especially among the rural schools.

The Council on Medical Education has continued the work which has been done during the past few years in raising the standard of medical schools throughout the country and this has in turn resulted in the closing of a number of the weak medical schools so that there are now practically no stock-company medical colleges in this country.

Various things came up of interest to the Association in the House of Delegates, but inasmuch as all these reports have been printed in full in the Journal, I do not think it worth your while to go into detail in regard to the action of the House of Delegates.

The scientific exhibit at the Civic Center was not up to the standard of many of the previous years, but we feel that this was due entirely to the fact that the Marine Hospital Corps and the various state exhibits in prophylaxis and prevention of disease were at the Exposition. However, there was some very good work exhibited at the building upon cancer research, pellagra, hookworm and hospital management. Many of the exhibits at the Panama-Pacific Exposition along this line were exceedingly good. Prevention of tuberculosis and diseases contracted from lice, mice, rats, mosquitoes, were all wonderfully well worked out.

At this Exposition the display by publishers and manufacturers of medical literature and instruments was fully up to the standard.

The entertainment was largely the Exposition. Members and families were given trips on the Bay, Mount Tamalpais and other scenic attractions around San Francisco.

L. H. McKINNIE,
H. R. McGRAW.

The Committee on Scientific Work was called for.

The Secretary stated that this committee had nothing to report except the program.

As Chairman of the Committee on Credentials, the Secretary presented the following report:

REPORT OF COMMITTEE ON CREDENTIALS.

Denver, October 4, 1915.

Your Committee on Credentials finds that Denver City and County is entitled to twelve delegates; that they have certified fourteen; that, therefore, the two apparently last elected—Dr. G. A. Moleen and Dr. A. H. Williams—with their respective alternates, have no constituency, and we recommend that they be not seated.

We further find that among the certified alternates there are certain duplications, and would respectfully suggest that Dr. H. B. Whitney be not permitted to act as alternate for Dr. C. E. Edson, inasmuch as he is alternate for Dr. Carmody; that Dr. G. F. Libby be not permitted to act as alternate for Dr. Wilkinson, inasmuch as he is alternate for Dr. Arndt, and that Dr. C. A. Ferris be not permitted to act as alternate for Dr. Shere, as he is alternate for Dr. Sharpley.

With these exceptions we recommend the seating of the delegates as certified and printed in the program.

CRUM EPLER,
D. P. MAYHEW.

It was moved that the report of the Committee on Credentials be adopted.

Motion seconded.

After considerable discussion, the Chair put the motion, with the result that 20 favored it, and 7 were opposed to it.

The report was declared to have been adopted.

Dr. W. H. Sharpley, Chairman, presented the report of the Committee on Public Policy and Legislation, which was referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE ON PUBLIC POLICY AND LEGISLATION.

October 1, 1915.

Mr. President and Members of the House of Delegates:

Your Committee on Public Policy and Legislation submits the following report:

The biennial meeting of the State Assembly brought forward, as usual, measures framed by sectarian and nondescript healers for recognition and protection.

At a meeting called early in the session, and fully attended by members of the House and Senate Committees on medical affairs, representatives from the State Board of Medical Examiners, delegates from the Committee on Legislation of the Medical Society of the City and County of Denver, and your own Committee, it was agreed that in view of the hostile attitude shown by a majority of the legislators toward organized medicine, a compromise must be made with the best elements of the osteopathic and chiropractic schools, to the end that the existing single board of medical examiners might continue to exercise the function of supervising all branches of the healing art practiced in Colorado.

These concessions were embodied in House Bill No. 178, eliminating the osteopathic exemption clause, and making adequate provision for the licensure of those chiropractics complying with the proper educational requirements.

This act further relates to the licensure of midwives by examination, "penalizing those who practice midwifery without a license, and defining what may be legitimately done by midwives; defines the practice of medicine on broader general lines than have ever heretofore been laid down; gives the Board of Examiners wider discretion in refusing and revoking licenses, such discretion applying to all forms of license; provides for the recording of all persons who may do any of the things above referred to, such recording by the secretary-treasurer of the State Board of Medical Examiners to be conclusive evidence in a court of law as to the right of the individual to practice medicine in its broad sense, or in any of its limited senses; provides that no licensee may practice for an unlicensed individual, set of individuals or corporation, except where he is employed to attend the employés of such corporation, the penalty for such offense including revocation of his license; provides that no unlicensed individual, set of individuals or corporation, may practice medicine through a licensee, as has been done by the various medical institutes and others, so freely advertised in the local papers; and that the optometrist may use only the terms 'optician' or 'optometrist,' to indicate that he is engaged in the business of refracting or fitting glasses to the human eye."

"The above provisions greatly strengthen the act in its administrative features, in which it far surpasses any law heretofore in existence in Colorado, making it of definite value in the interest of public health."*

The activities of your Committee were again directed toward legislative ends when a petition, largely fraudulent, was presented to the Secretary of State in July last, demanding that the above law be referred to a popular vote.

It being clearly shown that forgery and deceit were used in the framing of this petition, the Secretary refused it recognition, and our officers are now prosecuting a number of the distributors for fraud.

Individual members of the Committee have been active in promoting popular interest in public health matters. They have participated in the annual sociological conference of Colorado University; managed campaigns against the house fly; assisted the health department in its spring attack known as "clean-up" week, and conducted lecture courses on hygiene and sanitation in the schools and public libraries.

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*Quoted from statement in Colorado Medicine, May, 1915, pp. 135 to 137.

Respectfully submitted,
W. H. SHARPLEY, Chairman.

Dr. Melville Black, Chairman, presented the Report of the Committee on Publication, which was referred to the Reference Committee on Reports of Officers.

The report is as follows:

REPORT OF COMMITTEE ON PUBLICATION.

To the House of Delegates:

Your Committee takes pride in the new dress and the editorial management of Colorado Medicine for the past fiscal year. We have reason to believe that it is more widely read and more appreciated each year of its existence. It could be made more attractive if some arrangement could be perfected whereby regular reports from our constituent societies could be obtained. A means to this end suggests itself to your Committee, namely, that each constituent society be requested to elect, not appoint, but elect, an officer to be known as "The Society Reporter," whose duties shall consist in sending to the editor of Colorado Medicine an abstract report of each meeting of his society and at the same time to report such local news pertaining to the members of his society as shall have occurred during the month. We have endeavored to secure these news items and society reports through arrangement with local members, but except for a few instances the supply has not been continuous. We have no means of making such reports obligatory. If "Society Reporters" were made elective officers we believe they would feel responsible and this department of our Journal would be a conspicuous and pleasing feature which would be on a permanent basis and not forever dwindling down to nothing as is now the case.

During the past year Colorado Medicine has contained 434 pages of reading matter, of which 213 pages were devoted to papers and discussions from the last annual meeting of the State Society, 126 pages to other original papers, and the balance, 95 pages, to editorial and miscellaneous matter, including the report of the proceedings of the House of Delegates and the reports of meetings of local societies.

We have received from publishers sixty-six books which have been reviewed and placed on the shelves of our custodian, the Library of the Medical Society of the City and County of Denver.

From January, 1915, the size of the page has been increased and the style of the cover and of the binding changed, without increase in the charge for printing the journal. This represents an addition of rather more than one-sixth in the reading matter per page (and incidentally in the editorial work).

During the thirteen months, September, 1914, to September, 1915, inclusive, a total of 24,250 reprints was ordered by 48 authors of papers, 33 Denver men ordering a total of 19,600, and 15 authors outside Denver ordering 4,650.

There have been 137 pages of advertising, including the cover pages. The help given us by the Cooperative Medical Advertising Bureau established by the American Medical Association has been great, and it affords us much pleasure to acknowledge our appreciation of the excellent work they are doing. Advertisers are beginning to realize that if they have something worth while to advertise, it pays better to place their advertisements in medical journals which refuse to carry advertisements which are questionable, fraudulent, or for which exaggerated claims are made.

The gross expenditure on Colorado Medicine for the period of thirteen months, the previous year having included eleven months, was $2,146.01. The net receipts from advertising, from electrotypes paid for by authors, and for occasional subscribers and copies sold were $723.64. The appropriation at $2.00 per capita for 788 members of $1,576, plus the $723.64, receipts for advertising, amount to $2,299.64, and with our total expenses of $2,146.01 deducted we have in the hands of the Treasurer of the Society a balance to our credit of $153.63.

We desire to especially commend our Editor, Dr. Wm. H. Crisp, for the splendid work he has done in keeping Colorado Medicine on so high a plane among State Journals. We would recommend that our members bear in mind that Colorado Medicine is their Journal and that the more money obtained from advertising the larger and more interesting we can make the Journal, and that each of us can help by writing advertisers for samples, thus calling their attention to the fact that their advertisements are seen and read. It is a well-known fact that unless advertisers see that they are getting returns for their money they will not continue them.

Respectfully submitted,
MELVILLE BLACK,
A. J. MARKLEY,
L. B. LOCKARD,
Committee on Publication.

The Report of the Committee on Health and Public Instruction was called for, and in the absence of the Chairman, Dr. R. W. Corwin, it was not read, but referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE ON HEALTH AND PUBLIC INSTRUCTION.

The Committee on Health and Public Instruction begs to submit the following report:

Surprising results of investigations of rural schools show the sad need of better architectural and sanitary standards, better education in the principles and practice of school hygiene and sanitation, popular education from the public press and lectures on health topics.

It was ascertained from the Normal School and Universities of Colorado just what is being accomplished along the line of teaching the subjects of sanitation, hygiene and health sciences, and, if they did not already have a course, whether it would not be possible to install one. Replies stated that they were very much in sympathy with the undertaking. Where there was already a Department of Hygiene they were enlarging and intensifying it. They stated they expected to do more and would communicate later regarding their progress.

Realizing the importance of circulating information regarding the need of more instruction in the above subjects, the attached leaflet, "Something of Interest to Parents, Teachers and School Boards," was circulated. (It may not be out of place to say that this leaflet took the place of a monthly bulletin issued by the Colorado Fuel & Iron Company). Four thousand of these leaflets, written in English, Spanish, Italian and Slavonian, were circulated. They were distributed extensively outside the state, and a large number circulated among the rural schools of the mining camps of Colorado.

It was learned from Boards of Health and other bureaus that they possess many lantern slides illustrating different phases of public health work, showing good and bad sanitary conditions. It was recommended to School Boards that such slides be rented and shown before children and adults. Several sets were circulated.

We have succeeded in having toothbrushes furnished free of charge to school children in many localities. Bulletins in four languages on the "Care of the Teeth and the Toothbrush" were broadly circulated. At our request Colgate & Company sent thirty-five sets of literature on "Oral Cleanliness" for schools, and the Metropolitan Life Insurance Company printed material on health subjects for school use.

Classes in first aid training were started in the schools of fourteen southern camps, beginning with the kindergarten. These classes are conducted by teachers assisted by local doctors, and are making excellent progress. The attached bulletin on "First Aid in the Kindergarten" has been printed in four languages and circulated.

The advantages of the right type of school building have been lectured upon and stated in printed form. At the request of U. S. Commissioner Claxton, 20,000 copies of the bulletin entitled "The Unit School and Its System of Diffused Lighting" were sent him at Washington for distribution.

In a number of the cities school nurses have been employed, who are eager and willing to cooperate in spreading knowledge in sanitation and hygiene, and bettering the conditions of the home.

Lectures under the following titles have been given: Social Welfare; The Next Generation; How Would You Like a Fool for a Parent?; Sins of the Fathers; The Value of Good Home Environments; Health and First Aid; Health; What Shall We Do to Be Saved?; Health and the Public School; Eugenics; Community Welfare Work; The Rural School; Welfare and the Compensation Law.

M. E. V. FRASER,
F. W. KENNEY,
R. W. CORWIN,
Chairman.

Dr. George W. Miel, Chairman, presented the report of the Committee to Cooperate With the State Pharmacal Association, which was referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE TO COOPERATE WITH STATE PHARMACAL ASSOCIATION.

Denver, October 4, 1915.

The Colorado State Medical Society:

Your Committee appointed to cooperate during the year with a Committee representing the Colorado Pharmacal Association has this to report: No formal meeting has been occasioned; meanwhile the members of both Committees have been in touch and cordial relations maintained.

Having occupied ourselves the previous year with considerations relative to those addicted to narcotic drugs, their best interests and those of the community, our conclusions summed in request for legislation concerning the same, through our legislative committees. In the earlier part of the present year we have jointly aided in effecting this through passage of House Bill 249, by Mr. Taylor of El Paso County, which meets requirements very satisfactorily. This in no particular conficts with the federal law enacted by Congress December 17, 1914, the Harrison Bill, which in the main has been used as the substance of our state law; supplement essentially relating to commitment of narcotic drug addicts and their case. In the Taylor Bill, under Section 3—Written Prescription Defined, Duties Relating Thereto—requirements of indicating state license numbers, office hours and telephone numbers, will not be exacted by the Colorado State Board of Health.

Your Committee desires further to report its ignorance of any conflict between the two professions and in its opinion an enviable harmony exists in Colorado.

Respectfully submitted,
GEORGE W. MIEL,
GEORGE A. MOLEEN.

Dr. W. A. Jayne, Chairman, presented the report of the Committee on Library, which was referred to the Committee on Appropriations.

The report is as follows:

REPORT OF THE LIBRARY COMMITTEE.

October 1, 1915.

To the House of Delegates, Colorado State Medical Society:

Gentlemen—The Library Committee begs to report that of the appropriation of $200 made for library purposes, $199.27 has been expended, leaving a balance of 73 cents.

Most of the books purchased were selected with a view to their value for reference purposes, and many of them were so expensive that individuals would be reluctant to make the purchase. Liberal discounts were received on all purchases.

In compliance with the request made when the appropriation was voted on, a list of all the books of this Society, together with a list of journals on file in the Denver Society's library, was published in Colorado Medicine and was later sent each member in pamphlet form for reference.

Members from nearly all parts of the state have either visited the library during the year or applied for references, books and journals and they are using the facilities afforded by the library more and more. Many members have taken occasion to express their approval of the policy of making a liberal appropriation from the surplus funds of the society for library purposes.

The following is a statement of the expenditures and of the volumes in the library of this Society:

Printing of list of books and journals		$ 20.07
Purchase of forty-three volumes		179.20
Total expended		$199.27
Number of volumes in the library, October 1, 1914		543
Number of volumes purchased during the year	43	
Number of volumes received through Colorado Medicine	49	
Total volumes added during the year.		92
Total volumes in the library October 1, 1915		635

The increased number of members using the library during the past year both by visits and correspondence demonstrates the needs of our members for books and journals of reference and the appreciation by our membership of the advantages afforded. Your committee respectfully urges the wisdom of continuing the policy inaugurated last year of making an appropriation to the library, and asks that it shall be for the same amount—$200.

Respectfully submitted,
W. A. JAYNE,
ROBERT LEVY,
Library Committee.

Under the reports of special committees, Dr. H. G. Wetherill, Denver, presented a report from the Committee on Medical Defense, which was referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE ON MEDICAL DEFENSE.

October 2, 1915.

To the House of Delegates of the Colorado State Medical Society:

Gentlemen—Your Committee on Medical Defense desires to report as follows:

We have reviewed and considered the material gathered together by the committee of last year and are obliged to conclude that medical defense in conjunction with membership in various state medical societies has been successful, with few exceptions. In some instances the cost appears to have been rather high, but in many cases it is not more than $2 to $4 additional to the usual membership fee. Attached to our report will be found a summary from twenty-two states of replies to six questions addressed to them relative to this matter. In answer to question number five, "Is the plan successful?" there is not a single negative. It is important to call your attention to the fact that in nearly all of the states in which medical defense has been adopted the number of physicians is much greater than we have in Colorado. In all probability with our membership the cost would be greater than in most of the states reporting. Such medical defense associated with membership in our State Society would doubtless be more valuable to general practitioners than to specialists, as many of the latter would hesitate to drop their present insurance with the old-line companies. A member of our committee suggests that expression of opinion be asked for through letters to Colorado Medicine, and another suggests that a circular letter be prepared to be sent to each member of the Society, requesting a reply in order to ascertain the views of each member. The success of medical defense in every instance appears to have depended upon having some one at the head of the committee who is willing to give his time and attention to it. We should have to pay an attorney at least $300 to $500 a year retaining fee and $50 a day when in court. If we should have one court case and have it go against the defendant, the cost of carrying it to a higher court would be large.

California, for example, charges $6 and still has not enough money. Several other states speak of sailing close to the wind or running short. With our small membership, say 800, we should start with at least $2 per capita, which would raise the dues of the State Society to $5. In almost every state a good many physicians and surgeons carry insurance in regular defense companies. This no doubt would be true with us. Very few of our surgeons would be contented without an indemnity provision in case of judgment. What effect our undertaking to protect our members would have upon the premium charged those who continue to do business with regular companies is uncertain. Your committee is informed that Colorado has the lowest rate in the United States, because of the large number of policies carried. If the men who are most liable to suit continued their insurance, the risks of the companies would be greater, and they might have to charge accordingly. We are unable to state how this has worked elsewhere.

In conclusion, we would recommend that the question should be decided by a popular vote of the Society. A plain statement of facts should be prepared in the form of a circular letter and sent to each member, together with a postal card for his reply on a vote for or against the measure.

Very truly yours,
H. G. WETHERILL,
Chairman.
MELVILLE BLACK,
CHARLES B. DYDE.

Dr. H. G. Wetherill presented the following report with reference to the candidacy of Dr. Work for election to the United States Senate:

COMMITTEE TO PROMOTE ELECTION OF DR. HUBERT WORK FOR U. S. SENATE.

October 2, 1915.

To the House of Delegates of the Colorado State Medical Society:

Gentlemen—Your committee appointed to promote the interests of the public in securing the election of Dr. Hubert Work to the United States Senate desires to report that circular letters were issued to the members of the Colorado State Medical Society and other means were employed in cooperation with Dr. Work's campaign manager to bring about his election.

We regret to state that Dr. Work failed of election, though every effort was made by your committee to promote it.

(Signed) H. G. WETHERILL,
J. G. HUGHES,
CRUM EPLER.

The following report was read and referred to the Reference Committee on Reports of Committees:

REPORT OF COMMITTEE ON STUDY AND CONTROL OF CANCER.

To the President and Members of the Colorado State Medical Society:

Your committee appointed to consider the cancer problem begs leave to submit the following report:

From interviews with surgeons throughout the state, held by members of our committee, we find that there is room here too for education, both of the backward members of the profession and of the laity, as to the danger of delay in operating on cancer.

To this end the committee this year has endeavored to arouse the interests of the constituent county medical societies in this problem. With the active aid and cooperation of their officers, symposia on cancer were held during the year by the Denver, Las Animas and Bent County medical societies, in which members of our committee took part. The committee has been greatly assisted in its work by the American Society for the Control of Cancer, whose secretary, Mr. Lakeman, through the kind offices of Dr. Charles Powers, visited our state in behalf of this cause.

The propaganda for the education of the laity in this state has been enthusiastically conducted by a committee appointed by Dr. W. W. Grant, president of the Denver County Medical Society. This committee prepared well-written articles for the lay press which were published in the leading papers of Denver and Pueblo.

Through the kind efforts of Dr. Charles Powers, we have also secured the services of Mr. H. L. Hoffman of Washington to give three public lectures at Pueblo on October 20, at Colorado Springs October 21 and at Denver October 22. We trust that the members of the profession in those cities will assist the committee in making these meetings a success by getting a large number of the laity to attend the lectures. We made efforts to have Mr. Hoffman visit other portions of the state, but his itinerary would not permit.

The authorities of the University of Colorado Medical School have been approached with a view of having special lectures given to the senior students on the necessity of early diagnosis and treatment of cancer.

The committee respectfully suggests that in view of the importance of this subject, a standing committee be appointed to map out and conduct a plan of action for continued and systematic work among the profession, nurses and the laity.

Respectfully submitted,
THOS. A. STODDARD,
Chairman.
PHILIP HILLKOWITZ,
R. W. ARNDT,

The Secretary stated that one subject touched upon in his report was as to what position the medical profession proposed to take relative to the **Workmen's Compensation Act.** He had been repeatedly asked by members of the society throughout the state whether or not the members of the society would work for the ridiculously low fee which was offered, and he was unable to answer this question. He desired that this matter be referred to a special committee, and accordingly moved that the President be empowered to appoint such a special committee to report back to the House of Delegates at their pleasure.

Motion seconded and carried.

The following **Nominating Committee** was selected: T. E. Carmody, H. A. Black, C. A. Ringle, D. P. Mayhew and H. A. Smith, the Secretary having cast thirty-one ballots for the committee.

Dr. M. R. Bren moved that the report of the Committee on Credentials be recalled, that that portion relating to the seating of the Denver delegates be reconsidered, and that the whole matter be referred to the Denver constituency for consideration.

Motion seconded.

Dr. H. G. Wetherill moved that this motion be laid upon the table.

Seconded and carried.

On motion, which was duly seconded, the House of Delegates adjourned until 8 a. m. Tuesday, October 5, 1915.

Second Meeting of the House of Delegates, October 5, 1915

The House of Delegates met at 8:40 a. m. and was called to order by the President.

The Secretary called the roll and announced a quorum present.

The minutes of the previous meeting were read and approved.

The President announced as the Committee on Workmen's Compensation Act, Drs. P. J. McHugh, chairman, Oliver Lyons and C. O. Giese.

On motion, the House of Delegates adjourned until 8 a. m. Wednesday, October 6, 1915.

Third Meeting of the House of Delegates, October 6, 1915

The House of Delegates met at 8 a. m., on October 6th, and was called to order by the President.

The Secretary called the roll and announced a quorum present.

The minutes of the previous meeting were read and approved.

Dr. R. W. Arndt, chairman of the Reference Committee on Reports of Officers, presented the following report for this committee:

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS.

We have had three documents submitted to the committee, one of which was the President's address, concerning which we have no criticism to offer, but commend it. We have no recommendation to make in regard to it.

The second document was the report of the delegates to the American Medical Association. We have no recommendation to make in regard to it.

The report of the Secretary was divided into eight subjects.

The first one is a recommendation for an appropriation to pay a per diem and the expenses of one of our members as organizer, to be used at the discretion of the Secretary during the coming year. Your committee reports favorably on this and would recommend that the matter go before the Committee on Appropriations.

The next matter relates to the changing of Section 1, Chapter XI, which has to do with the election of delegates and alternate delegates so as to obviate a similar mix-up to that which occurred at a previous meeting. There are a number of inequalities in the constitution and by-laws, and this matter is of such vital importance that your committee recommends that the Chair appoint a committee of three to go over the by-laws, recommend such changes as in their judgment seem necessary, and report to this body next year. There is also a second recommendation by the Secretary of a by-law relating to the status of honorary members who are not paid for by their own societies, with respect to membership in the American Medical Association, and as to their subscription to Colorado Medicine. We also recommend that the special committee take up the Secretary's recommendation No. 7, which has to do with the duties of the secretaries of constituent societies relating to the keeping of a roster, not only of the affiliated members, but a separate list of the non-affiliated, legally qualified physicians of the district, showing every name and address, the college graduated from, the date of graduation, date of license to practice, and such other information as may be of value and interest. Our Secretary claims this section is a dead letter and thinks something ought to be done.

There is another matter which relates to an appropriation, which, we think, ought to go to the Committee on Appropriations, and that is, an incidental appropriation which the Secretary says should be enlarged this coming year, owing to the necessity of printing, the acquisition of new files, etc.

Another matter is a request that the minutes of this Society, as far back as possible, be taken from Colorado Medicine, bound and put in the hands of the Secretary. This matter also should go to the Committee on Appropriations.

The recommendation that the society take some action in regard to the fees paid by insurance companies and the state under the Workmen's Compensation Act should be acted upon.

The pro-rating of annual dues for reinstatement after October 1st concerns our by-laws and should go to the special committee.

There is a request to the State Medical Society to join the Medical Association of the Southwest, which was referred to the House of Delegates by the Secretary. In the absence of knowledge as to what the Medical Association of the Southwest is and what the acceptance of this invitation would entail, the committee refers it back to the House of Delegates without recommendation.

Dr. Chipman moved the adoption of the recommendations, and that the various matters be referred to the respective committees as indicated in the report.

Seconded and carried.

Dr. H. A. Smith presented the following report of the Reference Committee on Reports of Committees:

REPORT OF REFERENCE COMMITTEE ON REPORTS OF COMMITTEES.

To the House of Delegates of the Colorado State Medical Society.

Gentlemen:—

Your Committee on Reports of Committees desires to report as follows:

We recommend: That the report of the Committee to cooperate with the Colorado Pharmacal Association be filed and printed.

That the report of the Committee on Health and Public Instruction be filed and printed.

That the report of the committee appointed to promote the interests of the public in securing the election of Dr. Hubert Work to the United States Senate be filed.

We desire particularly to commend the work of the Committee on Public Policy and Legislation, of which Dr. W. H. Sharpley was chairman, and to compliment and congratulate this committee upon the efficiency of the services rendered.

We recommend the adoption of the suggestion made by the Committee on Publication that "each constituent society be requested to elect, not appoint, an officer to be known as the Society Reporter, whose duties shall consist in sending to the Editor of Colorado Medicine an abstract report of each meeting of his society and at the same time to report such local news pertaining to the members of his society as shall have occurred during the month."

We recommend the publication of the report of the Committee on Medical Defense and advise the adoption of their suggestion for a plain statement of facts in the form of a circular letter to be sent to each member of the State Society, together with a postal card for reply on a vote for or against the adoption of the measure.

We recommend that the Cancer Research Committee be made permanent.

Your committee has been impressed with the superabundance of good material on the program at this meeting. We would suggest that for future meetings the scientific program be limited to thirty set papers.

H. G. WETHERILL.
HARRY A. SMITH.
M. J. KEENEY.

It was moved that the report be adopted.

Seconded and carried.

Dr. H. A. Black thought the House of Delegates ought to request the Board of Councilors to make a report, as to his knowledge they had not done so since the organization.

The Secretary stated that the Board of Councilors were all notified by personal letter about a week or two ago that it was their duty to organize and report to the Society before its adjournment.

The report of the Nominating Committee was called for.

Dr. H. A. Black said the committee was not ready to report, and moved that when the House adjourned it should do so to meet again at 5:30 p. m.

Seconded and carried.

Dr. P. J. McHugh offered the following resolution:

"Whereas, The transactions of the House of Delegates and the papers read and discussions rendered at the annual meeting of this society are of much interest and valuable as a matter of reference to the membership; and

"Whereas, It is not always convenient to preserve copies of the society journal containing report of said transactions and papers and discussions; therefore, be it

"Resolved, That this society shall have all the transactions of the House of Delegates and all the papers and discussions printed and bound in a small volume and that a free copy of same be supplied to each member of this society."

It was moved and seconded that the resolution be adopted.

The Secretary moved as an amendment that this matter be referred to the Committee on Miscellaneous Business for report tomorrow morning.

The amendment was seconded by Dr. Gilbert, accepted, and the original motion as amended was carried.

Dr. McHugh moved that Dr. Jayne be given authority to give certain duplicate numbers of the old transactions to the library of the El Paso County Medical Society for its use.

Seconded and carried.

The Secretary brought up the matter of granting a **charter to the Bent County Medical Society**, and stated that as this came under scope of the Committee on Credentials, he desired to make the following report:

Your committee, to whom was referred the matter of granting Bent County Medical Society a charter, beg leave to report that said county is properly organized and entitled to a charter, and we therefore respectfully request that same be granted.

Dr. Chipman moved that the report be adopted.

Seconded and carried.

The Secretary stated that the Society had received an invitation to join the Medical Association of the Southwest. Personally he was not informed as to what this association was. He had been informed what it was for and by whom it was run, but not officially so. The Secretary of the Medical Association of the Southwest had asked some time ago if he could come to the meeting and present his case before the House of Delegates, and the Secretary of this society told him he could. Upon arriving in Denver Monday afternoon the Secretary of this society had received a letter asking him to wire Dr. Clark. Accordingly, he wired him last night that new business could be brought up on Wednesday at 8 a. m., and he would be glad to have him present his case then.

The Secretary then read a telegram from Dr. Clark to the effect that he was unable to come to the meeting, but that the mail matter he had sent would probably arrive here some time this morning. The Secretary suggested that the matter be referred to the Committee on Miscellaneous Business.

Seconded and carried.

On motion, the House of Delegates adjourned until 5:30 p. m.

Fourth Meeting of the House of Delegates, October 6, 1915

The House of Delegates reassembled at 5:30 p. m. on October 6th and was called to order by the First Vice President, Dr. Ella Mead, of Greeley.

The Secretary called the roll and announced a quorum present.

Under reports of committees, the Secretary stated that the **AUDITING COMMITTEE** reported having examined the accounts of the Secretary and Treasurer and had found them correct. (C. B. Dyde, chairman; A. J. Nossaman.)

Dr. Chipman moved the adoption of the report.

Seconded and carried.

Dr. H. A. Black presented the following report of the Committee on Appropriations:

REPORT OF COMMITTEE ON APPROPRIATIONS.

Mr. President and Members of the House of Delegates:

Your Committee on Appropriations, to which were referred the various matters pertaining to the expenditures of this society for the ensuing year, begs to report that it has considered carefully all the questions submitted to it and recommends the following appropriations:

Colorado Medicine, per capita....	$ 2.00	
Editor of Colorado Medicine, per month	25.00	
Secretary		$200.00
Allowance for stenographic work for Secretary		100.00
Public Policy and Legislation....		50.00
Printing and incidentals.........		275.00
Stenographer at State Meeting...		225.00
State Library		150.00
Organizing expenses and per diem		125.00
Programs		60.00

This will make the total expenditures $1,485.00 for the ensuing twelve months, which is an increase of $250.00 over the appropriation for the year just past, but it did not seem wise to your committee that any of the above amounts should be reduced below the specified sums.

Respectfully submitted,
H. A. BLACK.
F. W. LOCKWOOD.

It was moved and seconded that the report be adopted. Carried.

The Secretary presented the report of the Reference Committee on Miscellaneous Business, as follows:

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS.

1. In regard to the communication from the Society of the Southwest to affiliate with said association, we believe it inadvisable at this time to recommend such affiliation.

2. Concerning the First Aid Conference communication, requesting the appointment of three surgeons, we respectfully recommend the appointment of such a committee, to be known as the First Aid Committee.

3. Regarding the resolution introduced by Dr. McHugh relating to the printing and binding of the Transactions of the House of Delegates and the papers and discussions, the committee wish to report unfavorably on account of the expense to the Society.

We would suggest as an alternative that not to exceed thirty-five copies of Colorado Medicine in excess of those required for members, be printed and bound and be supplied to each constituent society at one dollar per copy.

4. We respectfully recommend that a complete report of the Transactions of the House of Delegates be printed in the next issue of Colorado Medicine.

Respectfully submitted,
W. W. CROOK.
T. E. CARMODY.
CHAS. J. HOWARD.

Dr. S. Fosdick Jones moved the adoption of the report.

Seconded and carried.

Dr. T. E. Carmody reported for the Nominating Committee, as follows:

REPORT OF NOMINATING COMMITTEE.

President, John R. Espey, A. A. Blackman; First Vice President, C. E. Tennant; Second Vice President, J. U. Sickenberger; Third Vice President, W. A. Kickland; Fourth Vice President, H. W. Averill; Member of Publication Committee, Melville Black; Councilors: Third District, Will Howard Swan; Fourth District, H. S. Henderson; Delegate to American Medical Association, Dr. L. H. McKinnie; Alternate, Dr. G. A. Moleen;

Place of Meeting, Glenwood Springs, September, 1916.

T. E. CARMODY.
H. A. BLACK.
D. P. MAYHEW.
C. A. RINGLE.
H. A. SMITH.

It was moved that the report be received as read.

Seconded and carried.

Dr. McHugh presented the following report as chairman of the special committee to report upon the Workmen's Compensation Law:

REPORT OF COMMITTEE TO INVESTIGATE WORKMEN'S COMPENSATION LAW.

We, your committee, appointed to investigate and report upon the Workmen's Compensation Law, as passed by the Twentieth General Assembly, in its relation to medical fees and the equity of same as compared with services rendered for surgical treatment of accident cases occurring under said law, begs leave to report that the time allowed for an investigation of the matter at this time is entirely too limited. The question is a very large one, and your committee feels that to make a report on a short and incomplete investigation might work an injustice to the profession, to the Industrial Commission, and to the spirit of the law itself. Therefore, the committee recommends that a permanent committee of three members be appointed by the President of this Society for the purpose of making a thorough investigation, and we recommend that this committee work with the Industrial Commission, which commission has generously invited such conference to the end that the law be made mutually satisfactory, both to the commission and to the medical profession, and that the committee report at the next regular meeting of this Society.

P. J. McHUGH.
OLIVER LYONS.
CHAS. O. GIESE.

Dr. Chipman moved the adoption of the report.

Seconded and carried.

ARCHIVES OF COLORADO STATE MEDICAL SOCIETY.

Dr. W. A. Jayne requested and was granted the privilege of presenting to the House of Delegates some matters relating to the archives of the Society.

He said: The subject I am about to bring before you should have been called to the attention of this body several years ago.

While I was president of this Society I looked about for the archives of the Society and found none. I looked for a complete file of the Transactions and for some time I could not locate the early numbers. I finally found a volume of the Transactions from the first year of the Society's existence in 1871, and later Dr. Gehrung, a charter member, presented the Denver County Society with a copy of the Transactions for the first two years through Dr. Wetherill. We therefore know of two complete files in existence. There may be more, I hope so, and am on the lookout for further copies of the first numbers.

Considering these early numbers of the Transactions to be of inestimable value to the Society and fearing they would be lost or destroyed, as they had been in the past, our Society being a peripatetic society without any home, I took measures for the preservation of our early records. After consultation with our then Secretary, Dr. Melville Black, and with others of the Society, I took action which has never been reported to this House and should, if satisfactory, be confirmed. I made up a full file of the Transactions, and as the early years were in small pamphlet form, I had the first seven or eight years bound in one large volume and the later years to 1902 and then to the 1906 number bound in several volumes, together with a complete file of Colorado Medicine bound in several volumes with their covers exactly as they appeared. After a satisfactory arrangement had been made by correspondence, a copy of which is on file in the Denver County Medical Library, this complete file was deposited in the basement of the Capitol Building, Denver, in the care of the Colorado State Historical Society. Each volume was properly entered in the library accession book of this Society and its destination was indicated, also each volume was stamped with the property stamp of this Society, a slip being inserted in each to the effect that the volume was the property of this Society, loaned and subject to return on demand. The State Historical Society was then placed on the mailing list for all future numbers of Colorado Medicine and it is intended that further files shall be deposited. Therefore a complete and official file of all our transactions and of our official journal is in safekeeping until this Society decides on another abiding place for them. The second complete set is the property of the Medical Society of the City and County of Denver and is cared for in its library, the early volumes being kept in the safe. Another and partial file, which I collected, is deposited with the Denver Public Library, which is also receiving a complimentary copy of Colorado Medicine as published from month to month.

Surplus copies of the transactions, both in pamphlet form and bound, and the extra copies of Colorado Medicine, are cared for by the library of the Denver Society. It has been our policy to contribute from the excess numbers, when we have a goodly number, to libraries applying to supply their files. When we have but a few these applications are declined.

It may interest you if I add that our Denver Society's library has for several years gathered all material relating to medicine in Colorado, all publications and other matter that it may preserve material which would otherwise be dissipated and which will eventually be a center for all such information concerning Colorado and a source of supply for such surplus material.

The Denver County Society is caring for and preserving the property of the State Society to the best of its ability.

Dr. Epler moved that the action of Dr. Jayne be approved by the House of Delegates; that he be thanked for the same, and that his report be made a matter of record in the transactions of the forty-fifth annual meeting of the Colorado State Medical Society.

Seconded and carried.

On motion, the House of Delegates adjourned until 8 a. m. Thursday, October 7th.

Fifth Meeting of the House of Delegates, October 7, 1915

The House of Delegates met at 8:20 a. m., and was called to order by the President.

The Secretary called the roll and announced a quorum present.

The minutes of the previous meeting were read.

Dr. H. A. Smith moved that the section in the report relating to the printing of additional copies of the transactions be changed to read not more than fifty copies instead of thirty-five copies. With this change, he moved the minutes be approved as read.

Seconded and carried.

ELECTION OF OFFICERS.

Election of officers being the next order of business, Dr. Hanford withdrew the name of Dr. Blackman for President.

As there was only one name before the House for President, Dr. Chipman moved that the rules be suspended and the Secretary instructed to cast the ballot of the House of Delegates for Dr. John R. Espey as President.

Motion seconded and carried.

The Secretary cast the ballot as instructed, and Dr. Espey was declared duly elected President.

The following officers were nominated and declared duly elected:

First Vice President, C. E. Tennant, Denver; Second Vice President, J. U. Sickenberger; Third Vice President, W. A. Kickland; Fourth Vice President, H. W. Averill; Member of Publication Committee, Melville Black, Denver; Councillors: Third District, Will Howard Swan; Fourth District, H. S. Henderson; Delegate to the American Medical Association, L. H. McKinnie; Alternate, G. A. Moleen; Place of Meeting, Glenwood Springs, September, 1916.

The Secretary read a telegram from Dr. William L. Rodman, President of the American Medical Association, addressed to Dr. Henry Sewall, asking that the Colorado State Medical Society follow Kentucky and Minnesota by passing a resolution endorsing a **National Board of Examiners.**

The President stated that there was being organized a National Board of Examiners which would in no way interfere with state boards. Men appearing before this board and passing its examination would have their credentials strengthened, so that if they wished at any time to change their location on account of ill health or for other reasons, they could do so. He thought there was every reason why this National Board of Examiners should be endorsed by the Society.

Dr. H. A. Smith moved that the House of Delegates go on record as favoring and endorsing the National Board of Medical Examiners.

Seconded and carried.

The Secretary moved that the first meeting of the House of Delegates in 1916 be held in Glenwood Springs at 8 p. m. on the Monday prior to the first day of the session of the Society.

Motion seconded.

Dr. Chipman moved as an amendment that the hour be made 10 o'clock p. m. instead of 8:00.

The amendment was seconded and carried.

The original motion as amended was put and carried.

As there was no further business to come before the meeting, on motion the House of Delegates adjourned to meet in Glenwood Springs in 1916.

CRUM EPLER, Secretary.

(End of Minutes of House of Delegates.)

MISCELLANEOUS PROCEEDINGS OF THE FORTY-FIFTH ANNUAL MEETING OF THE COLORADO STATE MEDICAL SOCIETY, HELD IN DENVER, COLORADO, OCTOBER 5TH, 6TH AND 7TH, 1915.

At the opening session the members listened to a short address of welcome by Dr. W. H. Sharpley, Mayor of Denver.

The report of the Committee on Necrology, printed below, was read at the afternoon session of the first day.

In the morning of the third day, Dr. Livingston Farrand, president of the University of Colorado, made a statement as to a course in public health being given at the university. (This statement is printed below.)

In the afternoon of the third day the new president, Dr. John R. Espey, was installed.

The society adjourned to meet at Glenwood Springs in September, 1916.

REPORT OF THE COMMITTEE ON NECROLOGY.

Presented to the Annual Meeting of the Colorado State Medical Society, Denver.

Since the last meeting of our society, nine members have died.

William W. Woods, M.D., a member of the Delta County Society, died February 9, 1915, aged 39 years. He received his degree in medicine from the Gross Medical College, 1899, and became a member of the Colorado State Society in 1907.

J. Aldo Rink, M.D., a member of the Medical Society of the City and County of Denver, died March 19, 1915, aged 41 years. He graduated Doctor of Medicine from the Denver and Gross College of Medicine in 1904, and became a member of the Colorado State Society in 1912.

George H. Stover, M.D., a member of the Medical Society of the City and County of Denver, died March 25, 1915, aged 44 years. He received the degree Doctor of Medicine from the University of Denver in 1893, became a member of the State Society in 1906, and was its President in 1908. He was Dean of the faculty of the Denver and Gross College of Medicine in 1909-1911, and was editor of the Denver Medical Times for several years.

Walter Hilliard, M.D., a member of the Medical Society of the City and County of Denver, died June 17, 1915, aged 70 years. He graduated Doctor of Medicine from the University of Louisiana in 1869, and became a member of the Colorado State Society in 1906.

Charles H. Burvenich, M.D., a member of the Medical Society of the City and County of Denver, died July 3, 1915. He received the degree of M.D. from the Central Medical College of St. Joseph in 1897, and became a member of the Colorado State Society in 1909.

Horace Kimball Braistead, M.D., a member of the Delta County Medical Society, died July 23, 1915, aged 59 years. He received his degree in medicine from the University of Michigan Homeopathic College in 1886, and became a member of the Colorado State Society in 1915.

Louis Huber Schultz, M.D., a member of the Medical Society of the City and County of Denver, died August 13, 1915, aged 31 years. He graduated Doctor of Medicine from the University of Cincinnati in 1906, and became a member of the Colorado State Society in 1908.

Elmer E. Bartelt, M.D., a member of the Prowers County Medical Society, died August 15, 1915, aged 53 years. He graduated in medicine in Berlin in 1886, and became a member of the Colorado State Society in 1908.

Lloyd McDonald Burgess, M.D., a member of the Delta County Medical Society, died September 5, 1915, aged 45 years. He received his degree in medicine from the Marion-Sims College of Medicine in St. Louis in 1893, and became a member of the Colorado State Society in 1905.

Each of these men, according to his measure, worked for the alleviation of suffering, for the maintenance of the public health and for the advancement of medical science; and each at his death left a circle of grief, and a gap in the ranks of our society.

Under the pall of death which hangs so darkly today over the agony of the whole world, it ill becomes a society like ours to dwell upon its own losses. May the gaps in our own ranks remind us of our increased responsibility to work for the benefit of a suffering humanity.

C. E. EDSON, Chairman.

POST-GRADUATE COURSE IN PUBLIC HEALTH AT THE UNIVERSITY OF COLORADO.

Statement Made by Dr. Livingston Farrand, President of the University of Colorado, at the Meeting of the Colorado State Medical Society, Denver, October, 1915.

On behalf of the University of Colorado, I wish to call the attention of members of the State

Medical Society to certain work which is being carried on at the University which we regard as having great significance. As you probably know, the University has, for some years, been working out courses in Public Health and Preventive Medicine leading to the degrees of Master of Science in Public Health and Doctor of Public Health.

The establishment of these courses has been in response to a demand which has manifested itself to a rapidly increasing degree in all parts of the country. With the change in Public Health administration in various parts of the United States, notably in New York and Massachusetts, there has sprung up a demand for health officers trained along sanitary lines. It has been difficult to obtain trained men when the opportunities have presented themselves. To meet this demand, and a similar one which has to be anticipated in our own and neighboring states, the University has established carefully planned and co-ordinated courses in these lines.

The point which I should like to emphasize at this moment is that the requirements of the University have been so planned that they can be met by qualified physicians in the least possible time. Thus work done by correspondence under the direction of the University and supplemented by an adequate amount of work in the summer sessions can be accepted for the Certificate in Public Health and is equivalent to the requirements for certain of the official positions as laid down in the newer laws in some of the more progressive eastern states. There is no doubt that many of our western states will come to this requirement in the near future. At the moment, we have but few men who could respond to the demand in technical training. It is naturally our hope that this and other courses at the University will appeal to local health officers in Colorado, as well as to physicians who may contemplate preparation in this important field. It is the first fully developed course in Public Health in this part of the country. We are naturally anxious that the medical profession of Colorado shall be fully acquainted with what we are doing and planning. Announcements will be printed in the near future and sent to you, and we ask for the co-operation of the physicians of the state in calling attention to the work in their several communities, not only to health officers, but to all those interested in public health and the prevention of disease.

News Notes

(Continued from Page 335.)

Dr. C. H. Darrow has become associated with Dr. C. E. Elliott at the Red Cross Hospital in Cripple Creek.

Dr. Frederick Gillett Byles died suddenly at his home, 2249 Marion Street, Denver, on October 22nd. Dr. Byles was for a number of years connected with the Denver and Gross College of Medicine.

Dr. R. H. Paxton, formerly of Florence, is now located at Rifle.

Dr. Ray Taylor, City Coroner in Pueblo, was recently an inmate of St. Mary's Hospital with an attack of acute appendicitis.

Dr. and Mrs. L. H. McKinnie left in the latter part of October for a three weeks' trip in the east, during which Dr. McKinnie was to attend the meeting of the American College of Surgeons in Boston.

Dr. John Darling, formerly of Norman, Oklahoma, has located at Antonito.

Dr. Davlin of Alamosa has just returned from a three weeks' trip to the Mayo clinic and Chicago.

Dr. Richmond of Center is at present confined to his home with a light attack of appendicitis.

Dr. Conelle of Blanca has recently returned from a trip to his old home in Nebraska.

Dr. Long of Moffat was recently called to Mississippi on account of illness in his family.

District Judge Butler of Denver has ruled that the medical bill enacted by the last legislature must be submitted to a vote of the people in accordance with the referendum petition filed with the secretary of state. Judge Butler held that the protest against the referendum did not show specific instances of fraud.

Dr. John T. Elliot has resigned his position as city physician in Denver.

A Ford coupé belonging to Dr. P. H. Heller was stolen in broad daylight from the business district of Pueblo on October 14th.

Dr. G. K. Olmsted announces the removal of his office from the Wyoming Building to 550 Metropolitan Building, Denver.

Dr. F. A. McGrew of Delta has removed to Comstock, Neb.

We are asked to announce that beginning with the January, 1916, number the Journal of Cutaneous Diseases will be published for the American Dermatological Association by W. M. Leonard of Boston.

Dr. Wm. Hutchinson, Denver and Gross, 1904, now located at Gallup, N. M., was in Denver shaking hands with old friends in the early part of this month.

Mr. S. L. Hoffman, of Newark, N. J., and Dr. Harry M. Sherman, of San Francisco, addressed a crowded audience in the auditorium of the Woman's Club, Denver, on October 22nd on the subject of cancer. The meeting was held under the auspices of the American Society for the Control of Cancer, the Denver County Medical Society, and the Woman's Club of Denver.

The Governors of the New York Skin and Cancer Hospital announce a series of clinical lectures on diseases of the skin, by Dr. L. Duncan Bulkley, on Wednesday afternoons, beginning November 3rd.

Dr. J. L. Yates of Milwaukee, guest of honor at the recent annual meeting in Denver, wishes to express to the members of the state society his great appreciation of the hospitality shown to him during his visit.

Dr. S. D. Van Meter wishes to correct the statement made in our October issue, and culled from Boulder and Denver newspapers, to the effect that his daughters, Elfrida and Virginia, who recently went to the University of Pennsylvania, plan to take up the study of medicine. It is true that the young ladies are studying in the University of Pennsylvania, but neither of them expects to graduate in medicine. The erroneous impression was apparently due to the fact that the older of the Misses Van Meter plans to qualify in medical laboratory and surgical illustrating work.

Dr. O. S. Fowler, who is president of the University of Colorado Denver Club, took part in the home-coming celebrations in Boulder on October 23rd.

A proposal to build a county hospital in Colorado Springs is being vigorously discussed. Plans have been drawn for a hospital to accommodate 96 patients, but this scheme is being opposed on the ground of expense by County Commissioner Rouse.

Dr. Livingston Farrand, president of the University of Colorado, was the guest of honor of the Teller County Medical Society and of a group of representative business men at Cripple Creek on October 27th and 28th.

The Denver Society for the Advancement of Medical Science held its first meeting of the season on October 29th. Dr. O. S. Fowler was elected president, and Dr. O. D. Wescott secretary.

Dr. Roscoe C. Baker, Denver, is back from a five weeks' visit in Boston and other parts of Massachusetts. While on his vacation Dr. Baker did some special work in tumor pathology.

On November 1st Dr. C. B. Ingraham was unfortunate enough to smash his car in avoiding a collision with another machine. He himself was unhurt.

Dr. Greig of Sterling has a new Overland car.

Dr. J. C. Chipman visited Denver on professional business recently.

Drs. M. R. Fox and M. L. Babcock of Sterling have moved into finely appointed offices in the New Henderson Building.

Dr. W. G. Lockhard of New Castle last month suffered the loss by fire, of incendiary origin, of several hundred tons of hay on his ranch a few miles from New Castle. No clue to the perpetrators of the cowardly deed has yet been found, although a liberal reward has been offered.

Dr. A. J. O. Lof, who for many years practiced the healing art at Aspen, has moved to Denver.

The management of the Glenwood Springs Sanitarium was on October 1st given over by the owners to Miss Edith K. Johnson. The sanitarium will be conducted as a non-sectarian institution, open to all reputable physicians. Miss Johnson is a Glenwood Springs girl and a graduate of the institution of which she is now manager. She comes from the German Hospital, Los Angeles, Calif., to take charge of the sanitarium.

El Paso County Notes.

Dr. Will H. Swan and family spent a vacation at Woods Lake early in October.

Dr. Louis N. Depeyre and wife are on a trip to California.

Dr. and Mrs. William V. Mullin spent a few weeks at Excelsior Springs, Mo., during October.

Dr. W. W. Arnold returned a short while ago from a visit with his mother in Ohio.

Dr. and Mrs. Louis H. McKinnie are on a trip to the Atlantic Coast.

Dr. and Mrs. Philip A. Loomis returned recently from Excelsior Springs, Mo., where they had been spending a few weeks.

Dr. and Mrs. J. A. Patterson are on a trip to California.

Dr. Edward R. Neeper is spending the month of November in New York City.

Drs. G. B. Webb and G. B. Gilbert have opened a suite of offices in the Burns Building.

Dr. Alexander Perry of Denver, formerly of Colorado Springs, died on October 20th in Los Angeles, Cal., where he went with his wife recently with the hope of recovering his health. Ten years ago Dr. Perry came from Nashville, Tenn., where he was graduated from Vanderbilt University. He is survived by his wife, father and mother who live in Nashville.

Boulder Notes.

On October 16th, Dr. W. W. Reed, Dr. Carbon Gillaspie and Dr. H. A. Greene left for points of interest in the East. They first visited Chicago and enjoyed Dr. Murphy's clinics in Mercy Hospital. Special attention was given to bone grafting, tendon transplantation and orthoplastic work of the knee and hip joints. A very interesting time was had with Dr. De Lee at the Michael Reese Hospital, also the Chicago Lying-in Hospital and Cook County Hospital were visited. At the Augustana Hospital, Dr. H. A. Ochsner did a variety of operations along general surgical lines, doing from twelve to fifteen operations daily. Wesley Hospital and the Children's Hospital were also visited. One week was spent in Chicago hospitals. The party then went to Boston to attend the Clinical Congress of Surgeons of North America, of which Dr. Charles Mayo was president. Two special trains were run conveying the physicians and surgeons of Chicago and the western states.

The Boston City Hospital, Massachusetts General Hospital, the Harvard Medical School Hospital, the Boston Lying-in Hospital, and the Boston Free Hospital for Women were visited. Very interesting work was had in Boston with Dr. Harvey Cushing, Dr. Scudder, Dr. Cheever, Dr. Graves, Dr. Francis S. Newell and Dr. Hugh Cabot. Considerable time was spent in New York, in the New York Post-Graduate School and in the Bellevue Hospital. Philadelphia was also visited and very interesting surgical work was had in the German Hospital of Philadelphia under Dr. John B. Deaver.

Dr. Reed paid special attention to the work in gynecology, obstetrics and abdominal surgery, while Dr. Greene was especially interested in general surgery, and Dr. Gillaspie, in addition to his study along general surgical lines, visited a dozen or more medical schools in order to compare the anatomical departments with that of the University of Colorado, in which Dr. Gillaspie is professor of anatomy. En route home, Dr. Greene made a brief visit to the Battle Creek Sanitarium.

Dr. O. M. Gilbert left about the middle of October for two months' post-graduate work in the East. He writes that he is having excellent work in the Massachusetts General Hospital, and considered himself unusually fortunate in getting to spend every forenoon with Dr. Cabot. He will spend some time at the Trudeau Sanatorium in the Adirondack Mountains; at the Rockefeller Instute, at Bellevue Hospital; at Philadelphia; at Baltimore; at Chicago with Dr. Murphy; at the University of Wisconsin; and with the Mayos. Dr. Gilbert will be back in Boulder between the 1st and the 15th of December.

Medical Societies

BOULDER COUNTY.

The regular business meeting of the Boulder County Medical Society was held in the Boulder Commercial Association rooms at the Boulderado Hotel, at 7:30 p. m., October 14, 1915.

The society was called to order and presided over by Dr. Green, the vice president, the president being absent.

Dr. Alice M. Lake was elected to membership. Dr. Willard White of Longmont was reinstated.

Bills amounting in all to $11.75 were allowed.

It was moved and carried that the election of a society reporter as required by the State Society be deferred to a later meeting.

The State meeting was discussed and an impromptu report given by Delegate Dr. Greene and Alternate Dr. Gilbert. It was stated that this society might take in as associate members men engaged in the sciences allied to medicine, such as chemists, dentists, etc., but that these men could in no sense be members of the State Society or of the A. M. A.

It was further reported by the delegates that the matter of the fees for medical and surgical services under the recent Workmen's Compensation Act was discussed fully. It was decided that three physicians be appointed to confer with the State Insurance Commission to see if the present fee bill could not be equalized, and the fees made more satisfactory. Until such changes be made, it was urged that members do not accept the schedule nor sign up any contracts. However, in the meanwhile, i. e., until we come to a better understanding, it was thought best for the men to continue the work without signing contracts, or with temporary contracts.

C. L. LaRUE, Secretary.

DELTA COUNTY.

A meeting of the Delta County Medical Society was held in Hotchkiss, October 29, 1915, President H. A. Smith in the chair.

Members present: Hazlett, Erich, Bolton, Bast, Meyers, Lewis, Williams, C. H. Burgin, I. F. Burgin, Cleland, Smith and A. Cracaw.

Dr. H. A. Smith made a very interesting report on the proceedings of the State Medical Society.

A paper was read by Dr. Erich on Melaena Neonatorum, with a report of a case which recovered. Discussion was general.

A paper was read by Dr. Bolton of Cedaredge on the Management of the Puerperium, and some of the anomalies of the condition. Discussion was general.

The next meeting will be held in Delta in the latter part of November. A very delightful dinner was served by the Hotchkiss doctors, after which we retired to the office of Dr. Bast, where the meeting proper was held.

W. S. CLELAND, Secretary.

CITY AND COUNTY OF DENVER.

The regular meeting of the Denver County Medical Society was held on October 19, 1915, Dr. W. W. Grant presiding.

Cases were exhibited as follows: By Dr. Wm. M. Spitzer, a patient from whom a tuberculous kidney had been removed; by Dr. T. E. Carmody, a case of tuberculosis of the parotid gland.

The Board of Censors reported favorably on the following applicants for membership and they were duly elected: Dr. Joseph H. Allen, Dr. Wm. M. Bane, Dr. Frederick E. Cole, Dr. Noah Dymenberg, Dr. Harold G. Garwood, Dr. G. Brinton Hepp, Dr. William Joffee, Dr. Cicero L. Lincoln, Dr. Robt. G. Packard, Dr. James A. Philpott, Dr. Harry S. Shafer, Dr. Harry L. Stevens, Dr. Harmon P. Brandenburg, Dr. George Atchison, Dr. Edwin L. Apperson, Dr. Horace R. Burns, Dr. Atwater L. Douglas, Dr. John William Foley, Dr. Horace Heath, Dr. J. Frederick Howard, Dr. James E. Johnson, Dr. Chas. D. McKenzie, Dr. Grant S. Peck, Dr. Miller E. Preston, Dr. Thos. A. Triplett, Dr. Chester A. Tygart, Dr. M. A. Spangelberger.

Scientific Program: "Symposium on Tuberculous Pleuritis and Its Complications".

Diagnosis and Prognosis......Dr. C. B. Van Zant
Use of X-ray in Diagnosis......Dr. Wm. M. Beggs
Medical Treatment...............Dr. A. S. Taussig
Surgical Treatment............Dr. C. E. Tennant

These papers were discussed by Drs. Whitney and Simon.

Attendance, eighty-eight.

H. R. STILWILL, Secretary.

EL PASO COUNTY.

The regular monthly meeting of the El Paso County Medical Society was held on October 13, 1915, with Dr. J. F. McConnell presiding.

There were thirty-five members and five visitors present, Drs. Stoddard, Epler, Wallace and Pierce of Pueblo having driven up for the meeting.

Dr. Carl S. Adams was elected to membership in the society.

The resignation of Dr. H. P. Daniels as a member of the society was read and a transfer ordered issued to the Dickinson County Society, Kansas.

The secretary was elected to the office of "Society Reporter".

Dr. W. K. Argo, superintendent of the State School for the Deaf and the Blind, gave a talk on "Modern Methods in Dealing with the Deaf and the Blind". The talk was illustrated with practical demonstrations by students from the school. The address was very interesting and instructive to all present.

Dr. Friedmann resigned as treasurer of the society.

A committee was appointed to arrange for a talk on "Prevention of Cancer" by Mr. Hoffman, to be given at a public meeting. The meeting was arranged for the evening of October 21st at the First Methodist Church, Colorado Springs.

Dr. Magruder demonstrated tonsils removed by the Sluder method. Discussed by Pierce and Bortree.

City Physician Gillett spoke in reference to the large number of drug addicts who are going about the town seeking drugs. It was moved, seconded and carried that the city health officer be notified of those who seek the aid of physicians, that he take steps to identify them and that the health office act as a clearing house to better control the addicts. There being no further business the society adjourned to the dining room, where lunch was served.

GEORGE B. GILMORE, Secretary.

GARFIELD COUNTY.

The Garfield County Medical Society met on October 14th in the office of the secretary, the vice president, Dr. W. R. Tubbs of Carbondale, presiding. In place of a regular scientific program, Dr. Crook reviewed in a very able manner several of the papers read at the meeting of the State Society, and gave an account of the doings of the House of Delegates, announcing officially that the next meeting of the State Society would be held in this city. The chair, on motion, appointed an arrangement committee as follows: Dr. W. W. Crook, chairman; Dr. W. W. Frank and Dr. J. P. Riddile.

W. W. FRANK, Secretary.

NORTHEAST COLORADO.

The Northeast Colorado Medical Society met in regular session at Sterling, November 3, 1915, Dr. J. K. Dawson presiding.

Dr. N. Eugenia Barney read a very interesting paper on "Varicose Veins". Paper discussed by Drs. Fox, Bush, Chipman, Daniels and Greig.

The subject of the Workmen's Compensation Act was taken up by the society and a warm discussion followed. No solution of the problem being reached, the matter was allowed to go over to the next meeting.

Dr. Myron L. Babcock was elected Reporter, in accordance with the recent action of the House of Delegates of the State Society.

It was decided to hold a banquet in the near future.

M. L. BABCOCK, Reporter.

PUEBLO COUNTY.

The Pueblo County Medical Society met in regular session September 21, 1915, President Taylor presiding.

Dr. Bon O. Adams presented an excellent paper on Joint Tuberculosis, well illustrated with X-ray plates of tuberculous hips, spine, knees and ankles.

The discussion was opened by Dr. Robe.

The Baby Committee reported as to its work at the State Fair. The committee was tendered a vote of thanks for its work and then discharged.

The society instructed the Secretary to have 200 copies of the constitution and by-laws printed.

Dr. T. A. Stoddard, chairman of the Cancer Committee of the State Society, announced that Mr. Hoffman of Washington, D. C., would address a public meeting on the cancer problem at Centennial Auditorium on the evening of October 20. Drs. Corwin, Epler and Woodbridge were appointed as a committee to assist Dr. Stoddard in the necessary arrangements.

The society voted that there should be no meeting on October 5 because of the meeting of the State Society.

J. H. WOODBRIDGE, Secretary.

The Pueblo County Medical Society met in regular session October 19, 1915, President Taylor presiding.

The paper of the evening was on "Twilight Sleep", and the reader Dr. MacLean. Dr. MacLean's communication was received with great pleasure by the members and his interpolations were as instructive as his text. The doctor believes that twilight sleep is still in the experimental stage, and that it is too uncertain and too dangerous to use in private practice; and he read extracts from the Jewish Hospital Clinic of New York, which gave all the precautions necessary to successfully conduct labor in this manner. The doctor believes that, for reasons mentioned, it is unnatural and unreasonable to expect painless labor.

Discussion was general and the consensus of opinion was that great caution should be the rule as to twilight sleep, both in its employment and in public utterance.

Dr. Black reported the meeting of the House of Delegates of the State Society.

A communication was read from Dr. Crum Epler, Secretary of the State Society, requesting that a Reporter should be elected to report the doings of local medical men and of this Society for Colorado Medicine. On motion of Dr. W. T. H. Baker, Dr. J. L. Schwer was nominated, and on vote unanimously elected, as Reporter to Colorado Medicine.

Dr. MacLean reported that the last medical law passed was held up indefinitely, due to the efforts of many irregular practitioners and their friends.

J. H. WOODBRIDGE, Secretary.

SAN LUIS VALLEY.

The San Luis Valley Medical Society met at the home of Dr. Moninger, Monte Vista, Thursday evening, November 4th, 1915.

A roast young pig dinner was served by Dr. and Mrs. Moninger. A short business meeting was held and Dr. Herriman was elected Society Reporter.

Dr. Trueblood reported a case of tick fever and read a paper on the subject. This was the first case ever observed in the Valley.

Dr. Howell presented a case for diagnosis, and several other interesting cases were reported.

Dr. Hillkowitz of Denver was a guest of the Society and talked on the subject of cancer. After his talk, Dr. Hillkowitz was asked questions on many other topics, all of which he ably answered. It was indeed a privilege to have the doctor with us and his talk was enjoyed by all present.

A vote of thanks was extended to him for his instructive talk, also to Dr. and Mrs. Moninger for their delightful entertainment.

Those present were Drs. Biles, Howell, Trueblood, Pollock, Moninger, McFadzean, McKibben, Aberg, Conelle, Shippey, Gothelf, Richmond, Judson, Davlin, Hillkowitz and Herriman.

L. L. HERRIMAN, Reporter.

WELD COUNTY.

The regular meeting of the Weld County Medical Society was held in Dr. Thompson's office, Thursday evening, October 21, 1915.

The meeting was called to order with Dr. E. W. Knowles, the president, in the chair and a large attendance of members. Routine business having been transacted, the scientific program was taken up. This consisted in a series of papers, selected and read by Drs. Mead and Thompson, by Dr. Lydston of Chicago. The subject matter of the papers referred to the transplantation of the human ovary and testicle from subjects killed by accident or violence to those of the human family who seemed to be lacking in this respect or who wished additional secretion from the glands in question. Dr. Lydston first experimented upon himself by adding an additional testicle to his armamentarium with very gratifying results; later giving the results of similar experiments in other patients. The long sought for elixir vitae seems to have arrived, wherewith the physician can successfully combat the ills that wait on age and eradicate the deeper wrinkles of the brow. The electric belt can be safely laid aside, with the satisfying knowledge that our pristine vigor and youthful vim will not be impaired. The satisfying sentiments which diffused the countenances of the members as they realized how close they were to the desired haven cannot be adequately expressed by the feeble adjectives of the English language.

CHARLES D. DYDE, Reporter.

COLORADO OPHTHALMOLOGICAL SOCIETY.

The regular meeting of the society was held October 16, 1915, at the office of Dr. W. F. Matson, Denver, at whose request Dr. C. A. Ringle of Greeley presided.

Dr. Edward Jackson conveyed to the society a copy of Dr. Julius Hirschberg's American Ophthalmologists, with the author's compliments. It was accepted with thanks, ordered bound, and loaned to the medical library of the city and county of Denver.

The Society decided to hold another Ophthalmological Congress in Denver in 1916.

Dr. G. F. Libby presented a case of glaucoma probably secondary to injury by a piece of steel sixteen years ago.

Dr. W. F. Matson exhibited two patients, cases of partial albinism with congenital nystagmus in which marked improvement had taken place in the past few years.

Dr. E. F. Conant showed a patient with choroiditis of one eye, the other being normal. The causation was rather obscure.

Dr. W. H. Crisp had a lady present who had been subject to repeated attacks of congestion around the cornea; these had at first been fugitive in character but during the last two months the condition had been constantly present. The etiology in this case was not clear.

Dr. D. A. Strickler presented a young man upon whom Dr. Coover had excised the tarsal cartilage and corresponding conjunctiva for trachoma of five years standing that had resulted in a perforating corneal ulcer. This had produced marked improvement in the condition.

The following members were present: Drs. Aufmwasser, Bane, Black, Boyd, Conant, Crisp, Hess, Jackson, Libby, Matson, Monaghan, McKeown, McCaw, Sedwick, Stilwill, Strickler and Walker of Denver; Drs. Magruder, Neeper and Patterson of Colorado Springs; Dr. Ringle of Greeley, and Dr. Spencer of Boulder.

E. T. BOYD, Secretary.

Book Reviews

Marie Tarnowska. By A. Vivanti Chartres, with an introductory letter by Prof. L. M. Bossi of the University of Genoa. Pp. 305. Price, $1.50. Published by the Century Co., New York, 1915.

This remarkable story has received considerable attention from the psychological world, probably as the result of the unusual character and final outcome of a mental conflict in a brain whose disorders were accentuated through the use of narcotics.

The unfortunate woman characterized as the "fatal Russian countess" was visited in the Italian prison to which she had been condemned for instigating the murder of her lover, and she detailed to the authoress the story of her life, emotions, obsessions and morbid impressions, together with the mental changeability and other evident influences of the varied environments in which she was placed.

She details her neuropathic heritage—her mother epileptic, and several sisters confined in institutions for the insane, while the father was described as dominated by the atavistic influence of the ancient O'Rourke, whom the prisoner characterized as a demoniacal Irish ancestor, "whose memory always struck terror to our souls."

The powerful and irresistible influence over men, at times seemingly dispassionate, yet leading them blindly to ruin, could hardly be ascribed to her own defectiveness, but the impairment of her judgments and her morbid reactions to the unusual conditions with which she seemed constantly confronted, were apparent.

It would hardly seem that the multiplicity of her paramours, and the ease with which she seemed to place her affections, first upon one and then upon the other, was purely the result of her mental state, but many conditions were superimposed upon this already impaired mind, which, through a lack of sound judgment and discrimination, sought the solution of her destiny in the lines of least resistance.

In the introductory letter by Prof. L. M. Bossi, who suggested the writing of the book, it is stated that moral obliquity in women is in most cases due to pathological causes and comparatively easy to cure. The latter is open to serious question. While moral obliquity, like the tendency to become habituated to narcotics, rather evidences primary defectiveness; in the character here described, the taking of narcotics was on the one hand a result of this defectiveness and on the other hand exaggerated her many other morbid impulses and impaired, as is so common under intoxicants, the remaining inhibitory power.

This is a first-hand story, direct from the lips and soul of a criminal whose misguided life from childhood to the time of her release from penal servitude is told without reservation and rounded into a story as fascinating and dramatic as it is gruesome and yet pathetic.

On the whole, the book is one which has an unusual interest for physicians, especially since it is not based upon fancy, but an uniquely detailed account of the working of an abnormal mind in an exceptionally beautiful woman with and without the effect of narcotics, and confronted by the most unusual circumstances and by personalities in whom her very presence seemed to inspire dire deeds. It affords an insight into one of the many pathways leading to an understanding of criminology. G. A. M.

Disease of the Nose and Throat. By Algernon Coolidge, M.D., professor of Laryngology in the Harvard Medical School. 12 mo. of 360 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $1.50 net.

Dr. Coolidge has written a book on laryngology and rhinology for the general practitioner and student of medicine that is concise, thorough, and readable.

He has avoided the mistake so frequently made in books of this kind, of including the technique of operations and the refinements of diagnosis and of treatment that are of service to the specialist only, and which merely confuse the casual worker in this field.

The book fulfills admirably the purpose for which it is written, and as such can be thoroughly recommended. L. B. L.

Cancer Quackery in the Eighteenth Century. The popularity of the cancer patient as a source of income of the quack is not new in the twentieth century. Thus in 1737 an ignorant French-Canadian named Ives Phlem derived a considerable income for many years from preying upon these unfortunates. Riddell (New York Med. Jour., vol. 102, p. 881) gives an account of this worthy and of a law-suit he brought to recover fees from the widow of one of his victims. In this case, as not infrequently occurs today, the patient had been informed by several competent surgeons that his case was hopeless; but Phlem contracted to treat and cure him—for a consideration. In the law-suit, which was determined against him, he produced as evidence in his favor the minutes of an enthusiastic mass meeting of the village in which he practiced, at which were present the curé, the seigneur, and "tous les habitants de la paroisse", and which declared confidence in "Doctor Phlem".

Colorado Medicine

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Editorial Comment

THE NATIONAL BOARD OF MEDICAL EXAMINERS.

For many years a plan has been incubating in some of the best minds of the medical profession to unify the requirements for the practice of medicine and surgery throughout the United States. The present system of licensure by a separate examining board in each state and territory can only be regarded as a makeshift to keep professional standards from utterly degenerating during a period of educational pubescence. The presidential address of Dr. W. L. Rodman at the last meeting of the American Medical Association set the pace for a new stage in the evolution of the medical profession.

He nominated an examining board of fifteen members whose professional standing was intended to guarantee its probity and ability. As will be seen below, the roster of membership includes representatives from all medical departments of the government. It is intended that annual examinations of properly credited graduates in medicine shall be held in Washington, D. C. These examinations are to be so thorough, not to say severe, that the licenses granted by the National Board cannot but be accepted for practice throughout the United States and its possessions. The National Board of Medical Examiners held its meeting for organization in Washington on November 29; every member was present. The first formal examination of candidates will be held in June, 1916. Following is the personnel of the National Board as at present constituted:

Admiral Wm. C. Braisted, Surgeon-General United States Navy, president; Major-General Wm. C. Gorgas, Surgeon-General United States Army; General Rupert Blue, Surgeon-General United States Public Health Service; Colonel Louis A. LaGarde, United States Army, treasurer; Assistant Surgeon-General W. C. Rucker, United States Public Health Service; Commander E. R. Stitt, United States Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isadore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllys Andrews, representing the American College of Surgeons; Dr. Louis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association; Dr. Henry Sewall, representing the Association of American Physicians; Dr. W. L. Rodman, secretary, representing the American Medical Association; Dr. Austin Flint, Jr.; Dr. Horace D. Arnold. H. S.

THE MIDWIFE QUESTION.

A systematic investigation of conditions in New York, Baltimore, Chicago, and Boston; and discussions by such societies as the American Association for Study and Prevention of Infant Mortality, the New York Association for the Blind, Conference on Infant Hygiene, held in Philadelphia, May, 1912, have brought out three incontrovertible facts concerning the midwife situation in the United States: First: A large proportion of the births in the United States, conservatively estimated at 50 per cent. (Ehrenfest), are attended by midwives. Second: The overwhelming majority of these are represented by the foreign population and the negro. Third: The average midwife of this country is intolerably below the standard legitimately demanded.

Paine (Boston Medical and Surgical Journal, November 18, 1915), in an attempt to secure more information on the subject, recently communicated extensively with various people interested in this problem. The replies which he received indicated a condition of uncertainty in the minds of the medical profession regarding the whole subject. Many were in doubt as to the best solution. A number have the idea that the midwife merits and has no defense; that she should be abolished. The replies embodied two general possibilities. The first may be described as the ideal solution: that every woman is entitled to all the benefits to be derived from care by a trained obstetrician, and that such experts should be in every community in sufficient numbers to superintend all maternity cases; further, that the high character of their work would automatically suspend the activities of poorly trained physicians and midwives. This idealistic program immediately raised a myriad questions which resolved themselves into the one of practicability, and so developed the second solution. This invariably included the trained midwife.

The midwife exists for economic reasons: she supplies both medical attention and nursing, and often helps in the care of the household. Allport writes that the midwife is the alternative which the self-respecting laboring man chooses, rather than accept either charity or subsidized help. Such cheap service can be furnished only by the midwife. "The assumption that we are afflicted with a plague of bad midwives is correct, but the fault lies with us as a community, not with the midwives, who, like the rest of humanity, are just as good or bad as our laws or our enforced conditions oblige or allow them to be."

A large number of the leaders of the medical profession, headed by Dr. Jacobi and Dr. Edgar of New York, believe that the practical solution of the whole problem is to be secured through the medium of the properly trained and supervised midwife in conjunction with better training of those physicians who practice obstetrics.

Various steps have been taken here and there to bring about this regulation. In some places the midwife is legally ignored; in others, licensed to carry on her work, but without particular supervision. In other states some inquiry is made into her qualifications, and her work is supervised. New York, Pennsylvania, Maryland, and Illinois are the states taking the most advanced stand in the matter of securing properly trained midwives. At present, there exists in the United States only one midwifery school under municipal control, that recently established in Bellevue Hospital, New York.

Dr. Williams, of Baltimore, frankly says: "In regard to the midwife problem, we are in a very difficult position, as in my experience the average doctor who treats the poor, and sometimes the rich as well, does quite as much harm as the ignorant midwife. Consequently, I do not think that we are justified in trying to abolish her until we can put our own house in order. . . . . . As long as students are taught that obstetrics consists merely in the delivery of women so long will it remain a discredited branch of medicine. After we . . . . . are prepared to offer properly supervised outpatient care to the poor, then we should take up the question of abolishing the midwife."

In this country it is often stated that the midwife is no worse than the average practitioner who treats the poorer class of obstetrical cases; perhaps even not so bad, in that she does not indulge in "meddlesome obstetrics." It is a deplorable fact that at present obstetrics is in most medical schools the most poorly taught subject in the whole curriculum. But this fault should be corrected, and not made an excuse for the midwife. When we have this proper training, competition of physicians with the midwife, in her special field, will disappear.

The midwife, as an untrained practitioner, merits much of the condemnation that she has received, yet she represents an attempt to solve a great problem, and in Europe, where she is an important factor, it is generally conceded that important advances have been made in dealing with that problem. And often, at least, the midwife represents the most practical means available.

Huntington, however (Boston Medical and Surgical Journal, November 18, 1915), writes that by developing a midwife system a dual standard is established in obstetrics, and Emmons and Huntington, who have undoubtedly studied the problem thoroughly, insist that the midwife could and should be eliminated. European obstetricians, especially in Germany and Austria, where strict regulations have been in force for more than a hundred years, have in recent times repeatedly expressed their dissatisfaction with existing conditions. The two writers last named suggest that the midwife should be replaced by obstetric out-clinics, by extension of the work of the visiting nurse, and by improved lying-in facilities in general and special hospitals.

No matter how well trained or regulated the midwife may be, surely in those cities where good medical schools exist the poor woman may receive better care and attention by out-patient service; and, in time, with an increase of the modern obstetrical dispensary, the midwife will be gradually superseded and disappear. C. B. I.

THE COMMUNITY ASPECT OF HEALTH PROBLEMS.

The question discussed in the preceding editorial really represents one phase only of a much larger problem, the problem of medical care of the poor. The progressive physician and the intelligent layman are not only demanding that all mothers shall bear their children under the best possible conditions. In addition to this very necessary safeguard for the future development and preservation of the population of civilized communities, we hear on every side voices calling for adequate control of such diseases as tuberculosis, syphilis, gonorrhea, and cancer. We are demanding that the children who attend our public schools shall be protected in health, and shall, so far as possible, be relieved of those defects or morbid physical conditions which may interfere with their prosperity, intelligence, and happiness. Children who suffer from poor vision or eye strain must have their refractive errors corrected. Diseased lymphatic tissues are to be surgically removed. Momentum is rapidly being acquired by a movement to protect the coming generation and those of the present generation who are so far healthy from the loathsome risks of venereal diseases, by compelling adequate treatment, and perhaps some definite supervision of the lives, of those who have contracted these complaints. Already in some communities definite steps have been taken, although not as yet on a very large scale, in the direction of periodical re-examination as to medical soundness.

All these things will involve radical changes in the relations of physicians to the community. If the state wishes children to be well-born, it should see that definite machinery is provided to this end, not merely as regards the rich and middle classes, but for all sections of the population. For millions of mothers the midwife is indeed an economic necessity, just as many parents go themselves, and take their children, to the optician because they fear that they cannot afford to pay the prices of the oculist. When we talk about keeping up professional prices to an ethical standard, we too often forget the many families upon whom a fairly substantial doctor's bill falls as a financial calamity. It is very well to say that the patient may attend the public hospital or dispensary or charity clinic, or even that many physicians are ready and willing in deserving cases to work without charge or at a reduced fee. If everybody of decidedly limited means came upon the public hospital or dispensary, those institutions would be overwhelmed. It is a platitude in the profession that no one does more charitable work than the physician. But on the one hand, it is unfair that the physician should be called upon to do this class of work for nothing, and on the other hand, there are many thousands of people who go without medical attention which they badly need, because they are too timid or proud to ask favors which are sometimes ungraciously given.

If we are to stamp out tuberculosis, the families of those wage earners who suffer from the disease will ultimately in many instances have to be cared for by the community. If thousands of school children each year are ordered to obtain the attention of an oculist or laryngologist, salaried experts must sooner or later be employed to deal with the large number of cases in which the parents cannot afford to pay regular fees. If an enlightened opinion calls for the performance each year of enormous numbers of Wassermann tests upon those members of the community who cannot afford to pay from $10 to $25 for the purpose of discovering whether they have syphilis, arrangements must be made, as has already been done in several cities and states, to have public medical officers conduct the tests, either gratuitously or at a nominal charge. Europe, at which we have scoffed because of its degeneracy and insanitary conditions, is learning some of these lessons a good deal faster than we of the United States. Medical attention is as actual a necessity as street paving, public education, or a pure water supply. The "coming man" in the medical world is the public health officer. In years to come he will perform duties almost undreamt of today. His numbers will be greatly increased, and the various departments of his activity will include specialties not now regarded as falling within the scope of public health service. If the state spends millions every year for the employment of cavalry, infantry, and artillery to protect it against the hostility of other sections of mankind, it seems not unreasonable to suppose that organized steps should also be taken, if necessary at an even greater expense, to preserve the life and health of the individuals who make up the state.

AN INDICTMENT OF INTERCOLLEGIATE ATHLETICS.

Most medical men appreciate and preach, although they somewhat seldom practice in their own person, the value of muscular exercise. The importance of bodily exertion continues throughout life, and its lack is in part responsible for many of the ailments prevalent among the adult populations of our cities. If there is any time of life at which, above all others; it is especially important that the muscular system should be brought into frequent play, this is in the period of physical development, the ages of childhood and adolescence. That being so, many have viewed with increasing apprehension the tendency of college athletics, especially in the intercollegiate aspect, to become a matter of virtual professionalism, whose exponents are not the great body of students, but a few individuals whose university careers are scarcely more than an excuse for their employment in business enterprises somewhat erroneously dignified with the name of sport.

A breezy and courageous article in the November issue of the Atlantic Monthly, entitled "An Indictment of Intercollegiate Athletics", and written by William T. Foster, president of Reed College, fitly opens with the statement that "Intercollegiate athletics provide a costly, injurious, and excessive régime of physical training for a few students, especially those who need it least, instead of inexpensive healthful and moderate exercise for all students, especially those who need it most". President Foster urges that the distinction made in college athletics between "professional" and "amateur" is unreal, and that it encourages widespread and flagrant deception and fraud on the part of many of the men concerned. He decries the tendency to sacrifice intellectual vigor and progress to the craze for excitement, and for the intrinsically profitless advertising which comes from distinction in intercollegiate contests. Quoting with approval the remark attributed to the Duke of Wellington that Waterloo was won on the playing grounds of Eton, he observes that Wellington "did not maintain that Waterloo was won on the grandstands of Eton".

President Foster is the head of an institution which, under his charge, from the beginning avoided "the hindrance of intercollegiate games and business motives". Reed College adopted the policy of athletics for everybody before there were any teachers, students, alumni, or traditions. Last year all but six of its students took part in athletics "in the spirit of sport for the sake of health, recreation, and development". Nearly all the students played games at least twice a week. There were series of contests in football, baseball, track, tennis, volleyball, basketball, and other out-of-door sports, at an average cost to the students of sixteen cents apiece.

It is to be hoped that many other colleges will see their way to adopt the principle of athletics for health and education instead of as a business enterprise.

MEDICAL CONDITIONS IN CHINA.

Some two thousand years ago our sturdy forefathers in the continent of Europe were for the most part, if not actually in a state of savagery, at least in a very low stage of civilization. At the same epoch parts of Asia, especially China and ancient India, boasted of great learning and of a high development of many of the arts of mankind. It is one of the wonders of human history that while the west advanced from ignorance to knowledge. the earlier civilizations of the east stood still, or even showed a distinct backward trend. To the reader of medical history this fact is particularly in evidence. The Hindoos and Chinese and Tibetans of today are still concocting the fearful and wonderful remedies used by their forefathers from ten to twenty centuries ago. It has remained for the modern learning of Europe to revivify these ancient and stereotyped civilizations.

An interesting account is given by Davis (United States Naval Medical Bulletin, October, 1915) of the medical darkness which prevails in almost the whole of the Chinese empire. Whereas in the United States with its ninety million people almost every town of a few thousand inhabitants has fairly good hospital facilities, in China the hospital needs of a population of four hundred millions are supplied by only a few government establishments and missionary enterprises. The medical missionary usually lacks competent assistance and modern facilities. Ordinarily one doctor and a nurse are in charge of a hospital and an out-patient dispensary, and careful scientific work becomes almost an impossibility. Much has yet to be done to overcome the natural fear and superstition of the native inhabitants. General surgery is usually limited to hernia, bone work, and relieving extensive infection. It is interesting to note that appendicitis is very uncommon, and the few cases occurring are usually recorded as having subsisted on foreign food. Although venereal disease is widespread, cases of tabes and paresis are exceptionally seen.

With all that has been said about the artificial deformities produced in the women of the western world by the use of tight corsets and high-heeled shoes, these things shrink into insignificance compared with that Chinese monstrosity, the practice of foot-binding. Several imperial proclamations were without avail against the custom, which involved both rich and poor. But interassociation with Europeans, and the activities of an anti-footbinding society, have of late years greatly diminished the practice, so that it is rare today to see young girls with bound feet. "The practice consists in the application of short, heavy bandages to the feet of growing girls, beginning at the age of three or four years. The large toe is merely compressed, while the other four are gradually bent under the foot and walked upon until the atrophy produced gives the appearance of flabby appendages compressed deeply into the sole of the foot. * * * The individual walks on the tip of the heel, the distal end of the first metacarpal, the plantar surface of the great toe, and dorsal surface of the others, producing a complete atrophy of the calf muscles. The constant pressure often causes a shortening of the foot to three inches". The deformed parts are favorable sites for tuberculous deposits.

Among the stock-in-trade of the Chinese medicine shops the horns of the deer finely powdered form a valuable tonic. The ingredients of a common prescription for a cough include baked barley, sugar, mashed beans, bamboo shavings, several roots, chalk, melon seeds (fresh and fermented), mashed pebbles, wild flowers, and a broken clam shell. The centipede and scorpion are used for counter-irritants. The favorite native surgical instrument is a long thin acupuncture needle, which is employed either hot or cold to penetrate any part of the body, including aneurysms, the eyeball, and the abdominal cavity. The native physician's required preparation consists of the statement, "I am a physician", and his greatest recommendation is inheritance of the occupation from a father or uncle. A fee must be forthcoming before any treatment is given.

The Chinese conceive health as a harmonious mixture of five elements, gold, fire, wood, earth, and water; and they explain disease as due to the predominance of one of these elements. They do not differentiate between the blood of the arteries and veins, and by them the tendons and nerves are still regarded as the same structure. The larynx is directly continuous with the heart through the lungs, the center of the thorax (or pit of the stomach) is the seat of the breath, and the pericardium is derived from and envelops the heart and extends to the kidneys. The "seven lobes" of the liver are the seat of the soul, and courage resides in the gall bladder. "The small intestines are connected with the heart, and the urine passes through them into the bladder, separating from the food or feces at the caput coli, where they divide from the larger intestines". (Williams' Middle Kingdom.)

Davis remarks that one of China's greatest needs is a large army of doctors, trained in western medicine, who could educate their fellow-countrymen in the simpler principles of sanitation and hygiene. He includes women doctors in this need, as he remarks that many Chinese women, particularly of the higher class, prefer death to being in the hands of a male physician.

Original Articles

SENILE PARENCHYMATOUS HYPERTROPHY OF THE BREAST.*

CHARLES A. POWERS, M.D., DENVER.

In accepting the complimentary invitation of the Committee on Scientific Work to present a communication on this subject, I am impressed by the thought that I may perhaps be able to call the attention of the general practitioner to a not uncommon disease of the female breast; a disease which, originally benign, may and undoubtedly does lead to cancer in a not inconsiderable number of instances.

In so far as I am able to learn, the condition under discussion was first described by Reclus[1] of Paris in the Gazette des Hôpitaux of July 7th, 1887. It was termed by him multiple cystic disease of the breast and was known for a long time as the maladie cystique de Reclus. Other observers have given it other names. Thus Koenig termed it chronic cystic mastitis, Schimmelbusch called it cystadenoma of the breast, Warren knows it as subnormal involution and Bloodgood considers it a senile parenchymatous hypertrophy. These are all different names for one and the same condition, a multiple cystic disease of the breast characterized by the slow formation of small grape-like bodies.[2]

While the clinical manifestations are fairly uniform the pathologic picture is not a constant one, several types of the growth having been described[3]:

(1) The distinguishing feature of the first type is the presence of smooth-walled cysts. They are usually multiple and of larger or smaller size. Their walls are lined at first by one layer of lower columnar epithelium. Later, as the pressure from the retained secretion increases, the epithelial lining disappears. The fluid contents of these cysts are usually turbid and of greenish or brownish color, never bloody.

(2) In this variety the breast has recently been the seat of a sub-acute inflammation. Both the parenchyma and periglandular connective tissue exhibit evidences of a low-grade inflammation.

(3) This type is more distinctly adenomatous in character. Here both the glandular acini and the cysts are found filled with masses of cells due to cell proliferation from the walls or to a papillary outgrowth simulating an adenoma.

On fresh section (2) and (3) present a very similar appearance. The picture suggests that of fibro-adenoma, except that the process is diffuse and not encapsulated. The chief changes observed are dilatation of the ducts and acini. Papillomatous ingrowths are also frequently present. The interlobular connective-tissue stroma is well marked.

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*Read at the forty-second annual meeting of the Colorado State Medical Society. (Publication delayed by author for the purpose of verification of data.)

[1] I have recently read that Reclus has seen 160 cases of this disease but I am unable at this time to find this reference.

[2] I make no doubt that by early recognizing and operating upon these breasts which are the seat of abnormal involution we shall be able to forestall cancer in an increasing number of instances.

[3] Keen's Surgery, Volume 3, page 568.

(4) This is the transition stage from the adenoma to the carcinoma. The pathologic picture presented cannot be distinguished from that of adenocarcinoma.

The importance of the early recognition[4] of this condition is very great. The more nearly the anatomic picture corresponds to the adenomatous type the more likelihood of later cancerous development. The more marked the cystic development and the larger the cysts, the less tendency there seems to be to the formation of cancer (Bloodgood).

The condition is fairly common. It may occur at any time of life, but is most often observed at or about the time of the menopause. The etiology is obscure; a careful study of my personal observations fails to throw any light on it. Trauma and inflammation can hardly be considered definite causes. The condition is more often seen in women who have borne children, but, indeed, the majority of women are in this class.

The diagnosis is at times easy, at times it is difficult. The woman's attention is apt to be primarily called to an enlargement of the breast, to a general feeling of fullness in it or to the presence of a lump or lumps. The first symptom may be pain. Rarely is there a discharge from the nipple.

On examination the breast may be simply enlarged or full. More often one or more lumps will be felt. These are apt to be semi-solid to the feel, movable on the underlying tissues, the skin over them being movable and unaffected. The nipple is apt to be normal. Rarely will palpable glands be felt in the axilla or above the clavicle. One or both breasts may be affected; indeed, the condition has a tendency to involve both breasts.

Management consists of a thorough removal of the affected breast. The curved incision at the outer, lower margin of the breast is a favorite one with me; through this the breast can easily be everted on the chest wall and carefully examined and removed from behind. In a considerable number of cases the nipple may safely be left, and by carefully applied, buried catgut sutures the contour of the parts can be fairly rehabilitated. (In my practice I have found this procedure very satisfactory.) The wound is closed without drainage and a subcuticular stitch ensures a negligible scar.

Emphasis is to be laid on the fact that in many instances preoperative diagnosis is uncertain and the operation itself exploratory. Should one or more large, segregated cysts be found they may be removed, but whenever the disease is typical, with multiple cysts, nothing short of entire breast excision will suffice.

I have removed 17 breasts[a] affected with this disease from 14 women. In one instance both breasts were involved and removed at the time of the primary operation, while in two other cases a woman who had suffered excision of one breast returned later for removal of the other. Further, I have knowledge of one additional case in which I removed the right breast, the left being excised for the same condition during my absence from town one year later by another surgeon. In all cases the women made a prompt recovery without accident or incident. There has been no occurrence of malignancy in any of these patients. In each instance the breast was thoroughly examined microscopically by one of our Denver pathologists and a copy of the histological report attached to the original history. As an example of these cases I may be permitted to cite the following illustrative instance:

Case Mrs. X., a woman of 35 years, kindly referred to me by Dr. F. W. Kenney. The patient has been married ten years and is the mother of four healthy children. There is no family history of cancer, tuberculosis, or other constitutional disease. The marital and menstrual history are negative. She has nursed all of her children and has never suffered from abscess of the breast or more than transient hardening. There is no history of trauma. Three months ago she first noticed a fulness and "lumpiness" in both breasts. The breasts have materially increased in size, but do not change during menstruation. The patient thinks that of late she has felt a dull pain in both breasts. She has not lost in weight or in strength, she has had no rheumatic pains, she has had no cough. Her appetite and general health seem to be quite as good as at any time. **Examination.** Both breasts seem full and enlarged. Each breast is the seat of movable tumors. These are segregated from each other, they are movable on the underlying tissues, and the skin over them is free and movable. They seem semi-solid and resistant. They are hardly tender on pressure. Both nipples are normal, and there is and has been no discharge from either. Examination of the axillary, supra-clavicular and cervical spaces is negative. Both upper extremities seem normal. Chest and abdominal examination is negative, and nothing is to be found in addition to the breast tumors.

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[4] Sasse (V. Langenbeck's Archiv Bd. LIV, Hft. I), as a result of a study of the very large amount of material in von Bergmann's clinic, concludes, with Reclus and Schimmelbusch, that the polycystoma of the breast comes from the pure epithelial growth and cystic dilatation of the acini. This seems to be the generally accepted theory of the development of this condition and is opposed to the inflammatory theory set forth by certain observers, of whom Thivenot and Almatrim, (Provence Méd., 1908) may be cited as examples.

[a] From time to time I have exhibited pathological specimens at meetings of the Denver Clinical and Pathological Society.

A provisional clinical diagnosis[5] of senile parenchymatous hypertrophy of both breasts was made and both were removed through peripheral incisions at St. Luke's Hospital November 19th, 1910. The late Dr. Henry S. Denison made the following histological report:

"Both breasts show the same diffuse process throughout, i. e., on macroscopical examination: pink dotted areas of parenchymatous hyperplasia 1/8 to 1/2 inch in diameter and numerous cyst and duct-like spaces, smooth-walled and varying in diameter from 1/16 to 3/8 inch, filled with inspissated yellow creamy material. This material examined microscopically was found not to be pus, but masses of myelin, degenerated epithelial cells, free myelin granules, fatty acid crystals and an occasional leucocyte.

"Sections examined microscopically show a distinct parenchymatous hyperplasia, (already noted macroscopically) and find every acinus completely surrounded by its smooth muscle investment. In no place is this investment found to be perforated in my sections. All stages of ectasia are present from the slightest possible dilatation of the lumina of the acini, to the large cysts and swelled ducts, noted microscopically, which are everywhere lined by a flattened epithelium."

In a number of doubtful cases I have derived much satisfaction from a histological report made to me in the operating room during the progress of the operation.

In none of my cases has the pathologist reported evidences of cancer, yet I am keenly alive to the fact that this is contrary to the experience of other surgeons. W. J. Taylor of Philadelphia (Annals of Surgery, Vol. 52, 1910, page 252) reports "that in 26 cases of cystic disease, 13, or just 50 per cent., had undergone some form of carcinomatous degeneration at time of operation". This liability to carcinomatous change was emphasized by Rodman[6] in presenting the subject for consideration by the members of the Section on Surgery of the American Medical Association at its meeting in 1912. In discussing Rodman's paper Bloodgood stated that in examining histologically something like 50 cases of senile parenchymatous hypertrophy cancerous change was found in nearly one-half. Finney[7] contents himself in saying that the treatment should be influenced by the fact that in a large proportion of these cases, estimated at from 10 to 50 per cent. by various authors, carcinoma subsequently develops. I am unable to reconcile this with the fact that cancer was not found in any of my cases, but accept it as a fact, and also accept and firmly believe the general statement that cancer is to be expected in a very considerable proportion of all cases, and that this renders imperative the early and thorough removal of the affected breasts.

12 Stedman Building.

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[5] This was correct in this instance, but it is to be remembered that it is often impossible to make a correct diagnosis before operation.

[6] In a recent, personal communication Rodman writes as follows: "I can safely say that at least 25 per cent of my cases of abnormal involution have undergone undoubted malignant change."

[7] Keen's Surgery; loc. cit.

THE EVOLUTION AND PRESENT STATUS OF MENTAL THERAPEUTICS.*

EDMUND J. A. ROGERS, M.D., DENVER.

That mental activities affect the physical conditions of the body has been taught since the earliest records, and many cults have from time to time arisen whose basic tenets were founded upon this idea.

During the nineteenth century mental therapeutics became much in vogue, and many able men practiced some form of it, but in the absence of any tangible theory, the conservative medical profession maintained an attitude of positive and generally bitter opposition.

The doctrine of animal magnetism had become widely known through Mesmer's results in Vienna and Paris, and was the most popular theory until Braid named and demonstrated hypnotism about 1845. Following Braid, Richet and Charcot began experimenting in Paris, while at the same time Leibeault was developing his theory of suggestion.

Three distinct theories were thus struggling for scientific recognition: (1) Animal magnetism, (2) Charcot's hypnotism, and (3) Suggestion.

The history of the definite modern movement in the profession is generally said to have begun in 1882, when Bernheim, then professor of neurology in the Nancy Medical School, recognized Leibeault's results, and began practicing and teaching along his lines.

At first there was much conflict between the Paris and Nancy Schools, as Charcot's great ability gave undue preponderance to his conclusions. The Paris school rejected the theory of suggestion, and selected their subjects for experiment from chronic neurotic hospital inmates, and as their attention was limited to so-called hysterical disorders, their experience soon led to much confusion between ordinary hysterical symptoms and conditions produced by unintended suggestion. Results were, in consequence, worse than negative, and the profession was retarded in the realization of the benefits of suggestive treatment.

Knowledge of the new discoveries became widely spread among the laity, and as the medical profession rejected these new ideas entirely, many people turned from their allegiance to the profession and organized semi-scientific, religious and philosophical cults of various kinds, hoping thereby to obtain relief from the old medical dogmas.

But although the movement was slow in the medical profession, it was wide-spread and constant. Results impressed every careful investigator. The study of medical psychology was stimulated, and a new conception of mind and personality arose, and new theories of behavior and action were evolved.

We have come to believe—I here quote from Professor McDougal, of Oxford,† whose theories of mental activity in conjunction with the Freudian theory of complex formation I in great measure follow—that (p. 19) "the human mind has certain innate and inherited tendencies which are the essential springs or motive powers of all thought and action"; that in it are (p. 3) "the sources of energy which set the ends and sustain the course of all human activity."

At the inception of the individual, we find present an accumulation of innate and inherited unconscious tendencies and dispositions, which have been slowly evolved through the experiences of our progenitors. These tendencies and dispositions constitute instincts and emotions, and they are the basic psychic elements of the individual mind.

These psychic elements, these tendencies and dispositions, vary in their arrangement in each individual mind, and as one or another element predominates in activity, so the congenital personal disposition varies.

From this beginning the mind continually grows, the new psychic elements of growth being the physical sensations and the ideas or other mental influences which are constantly being experienced.

Psychic elements once entering the mind

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*Read at the Annual Meeting of the Colorado State Medical Society, October 5, 6, and 7, 1915.

†The quotations made are from "Social Psychology", by William McDougal—Eighth Edition, Methuen & Co., London—the figure giving the page upon which the quotation is to be found

remain thereafter a permanent part of that mind, and are continually more or less active, undergoing arrangement and rearrangement as they are influenced by accident or purpose in forming and reforming groups and combinations; they are always in a more or less plastic condition, and there is no break or interval in their activity.

The combination and association of the elements in these groups is, of course, most complicated, as are also the combinations and associations of the groups with each other. In each group some one element may dominate that group and give it tone, and also one group may dominate other groups, and the combinations and associations are thus infinite.

When the arrangement becomes somewhat permanent, it is said to be organized, and when more fixed it is said to be crystalized.

When a group or association of groups become definitely organized about one idea, the Freudists terms this a complex.

All organized activities are controlled by such complexes, for the complex is in the very fact of its existence affective.

To quote further from McDougal (p. 26): "There is every reason to believe that even the most purely instinctive action is the outcome of a distinctly mental process * * * * because it is a psycho-physical process involving psychical as well as physical changes, and one which—like every other mental process—has, and can only be fully described in terms of, the three aspects of all mental processes—the cognitive, the affective and the conative aspects; that is to say, every instance of instinctive behavior involves a knowing of some thing or object, a feeling in regard to it, and a striving toward or away from that object."

As each new cognition or perception is experienced, some degree of change takes place in the arrangement of the psychic elements constituting the mind, and accompanying this some degree of feeling is aroused in the affective activity. As the feeling which is excited by the cognition in an instinctive process is termed an emotion, we may speak of this feeling as emotional. The quality of the emotional disturbance will, of course, vary with each change in the grouping of the psychic elements and conation in turn is directly influenced by the quality of the emotional disturbance and all physical as well as mental conditions are directly produced by conation.

When emotions become organized, they form what are termed sentiments, and thus conative activity becomes more stable, for the sentiments then habitually direct the conative impulse.

As the evolution of the human mind continues, self-consciousness appears, and we become aware that we can, by the exercise of volition or choice, develop the activity of selected complexes, and thus change their composition and so modify all mental processes and influence all behavior and all physical activity.

The more definite the organization of a complex—that is, the more habitual its activity—the more difficult it is to change this activity; indeed, it often seems almost impossible to disintegrate an instinctive or a strongly crystallized complex.

It is self-evident that only a small part of all this mental activity can be present in consciousness at any one time, and that much of its great activity must remain below the threshold. Indeed, much of it never rises into consciousness; and much that originally appeared in consciousness becomes so deeply submerged, often through volitional repression, that it cannot by ordinary memory processes be recalled to consciousness, and its presence can only be inferred through the results of its conative activity.

We thus see how every activity of the body, whether conscious or unconscious, psychical or physical, must be under the constant control and direction of the ever active and ever changing mind.

Let me draw an analogy between the terms defining an ordinary physiological reflex, and those of the psychological mental arc, although the psychological elements are of necessity not so clearly defined as are the physiological.

Thus we find the stimulus, the afferent impulse and the reception by the controlling center of this impulse, that is, the perception, represented in psychology by cognition, represented in psychology by cognition.

The activity of the physiological center, which we now see is, even in the most elementary reflex, an elaborate mental process influenced by accumulated experience, corresponds with psychological affection; while the elaborated efferent impulse in its inception and execution is covered by conation.

It is a well recognized psychological law, that any representation accompanied by a conative disposition, or tendency to action, directly operates toward the production of the condition represented; that is, that the actual conscious or unconscious presence in the mind of the representation of any physical activity or condition initiates an efferent impulse, tending to produce that physical activity or condition. The clearer and more distinct the representation, that is, the freer from the influence of doubt, questioning and discussion this representation may be, the more definite and effective the execution of the motive impulse will be.

If then by any means we can excite the idea of some certain physical condition, and a desire for its realization, together with the inhibition of all antagonistic influence, we tend directly to produce that physical condition.

And in this we see the key to the reason for psycho-therapy. We use it in the hope of directing the conative energies of the mind so as to produce physical activities conducive to health and to the overcoming of all that tends to produce disorder and disease.

A beneficent constructive conative disposition seems to be the normal mental attitude. The great difficulty seems to be to overcome the misdirected energies and inhibitions active in complexes built up from fears, doubts and misunderstandings.

In the beginning the practice of mental therapeutics fell almost entirely into the hands of the neurologists, and indeed its rapid evolution is due mainly to the work of certain men devoted to this specialty, and they soon claimed it as a minor branch of their specialty.

Neurologists generally hold that the application of psycho-therapy should be confined entirely to functional disorders of the mind and nervous system, and assert that this position is supported by the discovery of the fact that most disorders of the mind and of the nervous mechanism of the body can be traced to causes referable to the mental activities of the patient. They admit that this disordered mental activity of the patient often affects physical conditions and causes various local and general symptoms and serious organic complications, but they still strongly contend that the consciousness of the patient can have no influence upon the cause or course of actual physical disease.

This attitude seems in every way illogical, for if the mind is the source of all physical as well as psychical activity, and if the activity of the mind can be modified through consciousness, why should we attempt to exclude from its control the regenerative, recuperative and prophylactic activities of the body? I can find no basis in clinical experience for such an exclusion.

But to return to our historical sketch.

As the fallacy of the Charcot theories became manifest, the theories of suggestion became more generally accepted. Incidentally Bernheim moved from Nancy into Paris, and still practices there, but mental therapeutics has gone on evolving far beyond his theories.

It soon came to be recognized that hypnotism, though often a useful means of concentrating attention and dissociating antagonistic complexes, was not a treatment in itself, but only one of the possible means to the end.

The end to be achieved was the regulation of the psychic influences so that only health-producing conative energies would be elaborated.

Much investigation continued in Paris, but it was not only there that advances in knowledge were being made.

Every medical man regardless of the school or cult of medical psychology toward which he may lean must acknowledge the wonderful work and achievements of Dr. Sigmund Freud of Vienna. To Freud is due more than to any other one medical psychologist our knowledge of the affective influence of the deeply submerged subconsciousness complex, and indeed under his teaching the whole subject has become a study of the mental activities below or beyond the threshold of consciousness.

Every explorer is apt to follow paths which turn him from his true goal, and Freud became extreme in his view of the sex instinct. This instinct is considered by McDougal to be latent at birth, and not to become active in man until about the eighth year, (page 416), but Freud considers it the dominating instinct, and attributes nearly all the mental and many of the physical disturbances of even the earliest infancy to submerged complexes organized through its emotional influences.

There can be no question of the dominating influence of sex, both subconsciously and consciously, upon the mind in adolescence and maturity, but the other instincts and acquired sentiments play their part in influencing the development of mental attitude and character. Freud's teaching has, however, aroused the attention of the profession to a very important element, active to some degree in everyone, and this has led to the ventilation and clearing up of many dark and hidden corners of the mind.

Following the teachings of Freud and others, many procedures have been adopted in the effort to discover the affective hidden complex, which has often been organized about some volitionally repressed or deeply submerged incident in the forgotten past. Thus, hypnotism, associational stimulations, careful questioning, the interpretation of dreams, etc., etc., are all means to this end, for it is clinically found that simply exposing and explaining the complex causing the disorder will, in most cases, effect its disintegration and readjustment.

As the analysis and explanation of the offending complex is the object of treatment, the followers of these theories now call themselves psycho-analysts.

Few investigators, if any, now deny the affective influence of the deeper activities of the mind, but there is much difference of opinion as to the degree and as to the details of treatment.

Both in Europe and America extreme Freudism has many followers; but apparently a large number, of whom Dr. Jung, of Zurich, is perhaps the best known, hold a less extreme view; while of the great majority remaining of those who accept subconscious control, Dr. Pierre Janet, of Paris, probably exercises the widest influence through his conservative attitude. This conservative attitude seems dominant in America, and Dr. Morton Prince and Dr. Boris Sidis, both of Boston, though greatly differing in their personal views, well represent those that are outspoken in their opposition to the extreme theory.

But apart from the practice of neurology, psychological medicine is gaining a broad sphere of influence, and many medical men throughout the world are using the newly evolved knowledge in all fields of practice.

In this the aim can only be, to excite consciously, scientifically and with purpose a constructive conative disposition in the patient, without which no line of treatment can be of much benefit.

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DISCUSSION.

C. D. Spivak, Denver: A paper of this kind should not be permitted to go without some sort of discussion or expression of opinion. I cannot add anything of value to the paper because it is not in my line of work, and yet the author deals with a subject which is of interest to every practitioner. Most of us are familiar with the ideas that have been presented by Dr. Rogers for many years before this and other societies. I remember very well the first paper he read before the county society, and I can still hear the snicker that many uttered, if I might express myself in that way, and there were men who said that Dr. Rogers was getting old and cranky. But Dr. Rogers has survived this snicker, and has become stronger and stronger every year in his ideas and in his successful work along the line he has indicated. As I have said before, this is in the line of every practitioner because every one of us used suggestive treatment even before the name was known, and we use it now every day in our practice. I cannot bring this matter any more strongly to your attention than by illustrating the attitude of mind in patients in whom a faulty diagnosis has been made, and then the diagnosis reversed. Many of you have had experience in cases in which you have reversed your diagnosis of tuberculosis, and when you saw the patients two or three weeks later you have noticed what a change has been produced for the better in them. This in itself is enough to convince everyone of us what a strong influence the mind has upon disease.

A patient came to me recently on account of stomach trouble, and at the same time said he had tuberculosis and was losing some weight constantly. The diagnosis was reversed. He was told he did not have tuberculosis, shortly after which there was a great change in his physical and mental state. There is nothing that will bring to the mind the strength of the mental influence better than such cases.

About ten years ago I remember reading an article by one of the advocates of suggestive treatment. At that time it was not so well known as it is today. The writer said then that there would come a time when men by constant concentration of mind would be able to influence their bodily ailments. The saliva is acted upon through this concentration. If we can through mental concentration produce a flow of saliva, we know there must be a similar increase in the secretion of hydrochloric acid.

George H. Cattermole, Boulder: I would like to ask Dr. Rogers what he would do in such a case as this: A young lady this summer, suffering from an acute condition, said to me, "I am going to take up Christian Science; there is nothing in medicine; it is all in the personality of the physician." It is hard for the physician to meet such an argument as that. She meant it, and very frequently such people take up Christian Science.

In his pediatric practice, Hamburger of Vienna is strongly of the belief that suggestive treatment in all nervous conditions of children is the proper thing, and he is obtaining results from such conditions as epilepsy in children, also in enuresis, and in many neurotic conditions. It is quite important for us to know how far we can carry this sort of therapeutics.

Dr. Rogers (closing): With reference to what has been said concerning the religio-medical cults: I consider that their popularity is due to a mistaken conservatism on the part of the medical profession. As I see it, their virtue lies in the fact that their treatment constitutes a form of mild suggestion, which is usually applied in an indirect and ignorant way. They relieve many cases, including undoubtedly some severe cases, but all of these cases would have been relieved more satisfactorily and in a more scientific manner by a direct mental treatment, had the ordinary medical practitioner been properly trained in medical psychology.

Psycho-therapy is a department of the practice of medicine, and the care of diseased persons should not be relegated to a religious cult entirely ignorant of physiology and pathology. Psychology and religion may be closely related, but they are entirely distinct. Religion is a matter of philosophical speculation, while medical psychology is based upon scientific observation, and mental therapeutics have, I consider, a more stable and scientific foundation than that upon which the therapeutics of our materia medica rests.

Every one successful in the practice of medicine is consciously or unconsciously applying mental therapeutics, and I believe that in the vast majority of cases the results obtained, under every kind of treatment, are due to the mental influence consciously or unconsciously excited in the patient more than to the direct chemico-physical action of the remedy which may have been administered.

And, as in the relief of disease, so also in the production of disease. I believe that in the majority of physical as well as mental disorders, the cause lies in the fear and anticipation of disease—that is, the mental attitude of the patient—rather than in the material conditions to which the disorder is generally ascribed.

Do not infer from this that I question the reality of specific contagia, but I am strongly inclined to believe that immunity and the development of the various so-called anti-bodies are directly influenced by mental activity.

When disorders are due to deeply submerged and crystallized complexes, it is of course generally difficult to reach them, but of what use are physical remedies in such cases, except for their indirect influence. It is claimed, however, that even epilepsy has been relieved by mental treatment. Such disorders as enuresis can generally be quickly and easily relieved: I have seen many such cases. In disorders of this class, which we all know are practically beyond the reach of ordinary remedies, I consider mental therapy to be the only scientific treatment. In chorea I have always had satisfactory results with arsenic, and my confidence in it is so great that I almost invariably give it, but I think my results are infinitely better when I am able to reach the mind of the patient.

In those disorders which are generally classed as hysterical, that is where the lesion is an abnormal activity in the controlling centers—that is disordered conation—the only rational procedure is a mental treatment, and it is here that Freudism finds its greatest usefulness.

FIVE CASES OF RELAPSING FEVER ORIGINATING IN COLORADO, WITH POSITIVE BLOOD FINDINGS IN TWO.*

CHARLES N. MEADER, M.D., DENVER.

I wish to present the clinical histories of five patients, and the physical examination of two of them, together with certain laboratory findings. These cases are reported because I believe that they illustrate a condition which has not been observed hitherto in Colorado, or if observed, has remained undifferentiated.

Case I. Mrs. A., a married woman of 48 years, who was referred to me by Dr. Cuthbert Powell, was first seen July 24th, and gave the following history: She has lived in Colorado five years and in the United States thirty years. Her family history is unimportant, and she has had no previous illness of moment save a single attack of malaria twelve years ago.

Three weeks previously, on June 28th, she went with her 9-year-old son, her sister and her sister's husband on a camping trip up Bear Creek Canyon. For five days they lived in a tent halfway between Morrison and Evergreen, and then for two weeks were in a cottage three miles this side of Evergreen. She came to Denver July 2nd and remained till July 6th. During this period she tired easily, but had no definite symptoms. Upon her return to the cottage she became notably weaker, breathless on slight exertion, dizzy, and had some vague aching in the legs, symptoms which she attributed to the effects of altitude. On July 9th she awakened with an intense headache, most severe in the occipital region, severe aching across the loins and in the muscles of the legs, high fever and great prostration. There were no true chills but she felt chilly. She vomited at short intervals during the day, the vomitus consisting of small amounts of watery, bile-stained fluid. The bowels, which had been more than usually constipated for several days preceding, became obstinately so. There was no sore throat or skin eruption. Her condition continued unchanged during this day and the next. On the afternoon of the third day she had a profuse sweat, the headache, backache and leg ache rapidly disappearing; she slept well that night and was up and about during the whole of the fourth day with no symptoms other than considerable weakness. On July 16th, seven days after the onset of the first attack, she had a second precisely similar one, with rapid recovery on the third day; and on July 23rd, seven days after the onset of the second attack, a third began.

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*Read at the Annual Meeting of the Colorado State Medical Society, October 5, 6, and 7, 1915.

When first seen on the afternoon of the second day of this attack the physical examination was as follows: The patient was much prostrated, complaining of severe headache; her temperature was 99°, pulse 100 and very weak and thready. The tongue was moderately coated, throat and glands negative. The heart borders were normal; there were no murmurs, but the sounds were very feeble and distant and an occasional extra systole was noted. The lungs were negative. The abdomen was soft and lax. The upper border of the liver to percussion was at the 5th space, its edge was palpable 2 cm. below the costal margin and was distinctly tender. The spleen was not enlarged to percussion, was just palpable and was somewhat tender. The reflexes were normal. There was no skin eruption.

The urine was highly colored, acid, specific gravity 1022, with a considerable trace of albumin, and very many fine hyaline casts, far more than are commonly seen in a "fever urine." There was no blood.

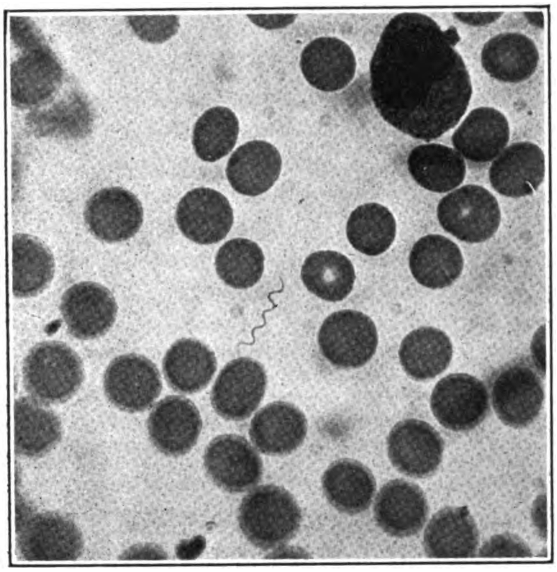
Blood examination showed a white count of 7,200, with 60 per cent. polymorphonuclears and 13 per cent. transitional cells. No eosinophiles were seen in a count of 200. No plasmodia were found and a later search of these specimens for spirochetes was negative.

The following day the temperature remained at 97°, and the patient felt well but weak. Three days later the liver and spleen were no longer palpable; there was no tenderness in the region of either, and the urine was free of albumin and casts. The heart action was still weak and rapid (110), with no irregularity. The leucocyte count had risen to 11,200; the polymorphonuclears were 68 per cent., transitionals 5 per cent.

On July 30th she had her fourth attack, the temperature rising rapidly to 102.5° and the same train of symptoms appearing. The liver and spleen again became easily palpable and moderately tender. The blood on the next day showed a count of 7,000 leucocytes, with a differential corresponding to that observed during the previous attack. A few spirochetes were found in these smears.

At this time she was put on small doses of quinine for a week and she has since developed no frank attacks, though she has had on several occasions slight aching in the legs with mild occipital headache lasting only one day. On one of these occasions, spirochetes were again found in the blood. She was then given a course of sodium cacodylate intramuscularly and has had no further symptoms. Repeated search of the blood in the intervals has been negative. During these intervals she has felt well save for persistent moderate weakness and obstinate constipation. Since the cessation of the attacks she has gradually regained strength and is now about normal. Her pulse-rate is still between 85 and 90, but is of good quality and regular. Examination of the heart shows nothing abnormal.

The second patient, Ruth A., daughter of the first, had remained in Denver continuously during the summer. On September 3rd she developed an attack precisely similar to those of her mother, characterized by intense headache, backache, and leg ache, great prostration, nausea, frequent vomiting and obstinate constipation. When seen on the afternoon of the first day she had a temperature of 104.8°, pulse of 144, very weak and thready. Her heart was somewhat dilated, the sounds were weak, muffled and distant and there was a soft systolic murmur at the apex. There was slight general tenderness of the abdomen without rigidity, the liver edge was palpable just below the costal margin and was slightly tender; the spleen was palpable 2 cm. below the costal margin and was not tender. The urine showed a large trace of albumin and many fine hyaline casts. Blood examination on this day showed a leucocyte count of 6,400, with 55 per cent. polymorphonuclears, 10 per cent. transitional cells and no eosinophiles. Spirochetes were present in considerable numbers. Upon calling the next day it was found that she had had a profuse sweat during the night and had felt so well in the morning that she went to work as usual. Two days later her temperature was 99°, a rare spirochete could be found in the blood after concentration, her white count was 10,000 with a normal differential and the liver and spleen were no longer palpable. The heart was negative and the urine was negative. She remained weak for several days thereafter, but has since been as well as before. Her treatment consisted of quinine pushed to toleration for four days, with one three-grain dose a day for two weeks thereafter. She had no arsenic.



Spirochete in Blood in Dr Meader's Case of Relapsing Fever.

Of the other three members of the camping party, Lawrence A., son of Mrs. A., had an attack similar to hers in every detail, though less severe, beginning simultaneously with her first one and lasting two days. He has had no recurrence, though on two occasions after exposure to a cold rain he has had for one day some aching in legs and back accompanied by headache. No spirochetes have been found in his blood.

Mrs. A.'s brother-in-law, Neils N., had a similar attack on July 9th, the day of her first attack. His symptoms were rather more severe, the attack ended on the third day with a profuse sweat, and a day or two thereafter he felt as well as usual. A week from the beginning of his first attack and simultaneously with Mrs. A.'s second attack, he also had a recurrence. This presented the same symptoms as the first, lasted three days, and ended in a profuse sweat. He took quinine for several days at this time in unknown amounts and remained well until three weeks later when he had a third attack. The symptoms were all milder, the crisis came on the second day, and he has had no symptoms since.

The wife of this patient, Margaret N., had her first attack four days after the onset of the disease in the other members of the party. Her history differs from that of the others in that she had no prodromal weakness, no constipation and no nausea or vomiting. Otherwise her description agrees exactly. She had her second attack three weeks from the beginning of the first, a third two weeks later, and a fourth, a very mild one, one week after that. She has since remained well. These last two patients were not seen until several weeks after the last of their attacks and no spirochetes could be found in their blood.

In addition these patients report that a boy of seventeen years living near the site of their first camp has had several attacks in every way corresponding to theirs.

We have, then, five patients and probably a sixth who have been ill with precisely the same train of symptoms. The outstanding features are in brief: slight prodromal weakness and malaise; abrupt onset of fever accompanied by intense headache, chiefly occipital, with severe loin ache and leg ache; nausea or vomiting with constipation; marked prostration; a high fever (102.5 to 104.8), running a definite course of two or three days and ending by an abrupt crisis, the fall being accompanied by profuse sweating. There is further a recurrence of similar attacks to the number of three or four at rather definite intervals. Convalescence from the single attacks is rapid and is marred only by a slow return of muscular strength. The striking points upon physical examination in the two cases seen during the height of the attack have been a pulse which is weak out of all proportion to the apparent severity of the disease, due probably to a slight cardiac dilatation; with a moderately enlarged and tender liver and spleen. Of the laboratory findings, the appearance and disappearance of a considerable amount of albumin and large numbers of fine hyaline casts in the urine is strikingly rapid. The normal or diminished leucocyte count accompanied by a fall in the proportion of polymorphonuclears and a rise in the transitionals during the attack, with a slightly increased white count and return to normal cell proportions in the intervals is noteworthy. The feature of the blood examination which is the criterion of diagnosis is of course the demonstration of the spirochetes. This was accomplished in smears stained by the usual Wright stain in two cases. As already noted, spirochetes could never be found in the intervals between attacks.

There seems, then, little room to doubt that these cases represent a small local outbreak of relapsing fever.

So far as I have been able to find in a search of the literature this disease has not previously been observed in Colorado and has not been reported from any section of the United States since 1869, when small epidemics occurred in Philadelphia and New York. Sporadic cases of relapsing fever have been noted in most parts of Europe and Asia, while epidemics have occurred chiefly in Great Britain, Russia, Germany and Africa. The outbreaks in this country have occurred chiefly among immigrants and "it has never gained any foothold among native Americans" (Osler). The mode of transmission of the African type has been proved to be by ticks; in the European disease the bed-bug has been generally held responsible, though this is supported by a single series of observations and there exists rather convincing evidence to the contrary. In the present series of cases, the question of etiology is an interesting matter for speculation. The only clue I am able to offer rests upon the fact that a band of gipsies, apparently of the true southern Europe type, stopped at the tent where four of these patients were staying on the first day of their occupancy and were with some difficulty and only after some time induced to move on and cease theirs offers of palmistry, trinkets, etc. So far as is known none of them was sick. There was certainly ample opportunity for the transmission of body vermin from them to these patients. The onset of their disease occurred eleven days later, which is within the limits of the rather indefinite incubation period observed elsewhere. The onset of the disease in three patients on the same day suggests strongly a common source of infection. The illness of Ruth A. began Sept. 3rd, forty-five days after her mother and brother returned home. During her mother's fourth attack she slept in the same bed and blankets which her mother had used since her return home. There was free opportunity for the transfer of spirochetes to her through bed-bugs or other intermediary hosts.

These cases are reported for the purpose of calling attention to the existence of this disease in Colorado, so that the members of this society may be especially on the watch for it to determine if this be only a sporadic, accidental outbreak or if we have an endemic focus.

I wish to thank most heartily Doctor Tracy R. Love for the very excellent photomicrographs which he prepared, and one of which is reproduced with this report.

305 McPhee Building.

DISCUSSION.

William T. Councilman, Boston: I am acquainted with Dr. Meader's work, and had the opportunity yesterday of seeing some of his beautiful slides. I am sorry that I did not arrive in time to hear the full paper; but there are one or two problems in regard to it of which I might say something. The work shows the enormous importance of methods of investigation; knowledge advances rapidly as soon as new methods are discovered and applied in the study of new problems.

Dr. Meader has carried on a very important piece of work in regard to the disease which he has brought before us. The number of such blood diseases is very large. They can spread only through the medium of some agent which, outside of the body, conveys the blood parasite to some other person. We have a striking example of this in malaria. We must not only have the parasite which is the cause of the disease, but we must have some other parasitic organism to convey the disease. We have been very fortunate in regard to those diseases, because the only parasites which are found in the blood have been brought to this country from other countries where the two parasites are endemic. We have had one parasite, a blood parasite, brought to us again and again, but so far we have been very fortunate in that the parasite which conveys the disease, either a tick or a louse. or some such agent, has as a rule not found a suitable environment in this country. We have had striking examples of that in regard to sleeping sickness. Sleeping sickness we have long known. It was called in the old days African lethargy. Sleeping sickness was brought to this country by Africans, and they died in this country, but the disease was not recognized, and there was never any extension of the disease here, because the fly which is the necessary agent for the production of the disease was not brought to this country. This disease could only have been transmitted by some insect which was also brought in and found here favorable conditions. The question will at once arise whether the insects, the particular fleas which convey this disease which Dr. Meader has shown us can be brought to this country. We have repeatedly cases brought in by the Armenians, but so far it does not seem to me we have had any examples of endemic foci which have been started. That must be simply due to the fact that the tick or the flea—a tick I think is very probably the agent—has not found in this country an environment suitable for its life. In the cases reported by Dr. Meader, it seems to me he clearly shows that the disease was transmitted from the foreigners to other people. It is a very remarkable thing that these cases should be so different from the cases in which other animals and plants have been brought into a new country. Very often, when we bring an animal into a new country, this offers a good environment for the animal, and it increases enormously and often becomes a pest. An example is that of the rabbits in Australia, and still more marked with regard to the mongoose in Jamaica. Both of these animals have become pests, and have led to a modification of the life habits of the native animals.

In regard to plant introduction, it may be a very unsafe thing to introduce new plants. We have had a great many examples of this.

I do not know the literature of relapsing fever to any great extent, but I do not think any eondemic foci have ever started in this country. I should like to ask Dr. Meader in regard to that.

Dr. Meader: No, sir, according to Osler.

Dr. Councilman: But there is always a possibility of it, and there is the danger. Of course, our very civilization brings these dangers. The rapid and constant interchange between nations, it seems to me, must in the end bring everything to a dead level, and there is a possibility always that many new diseases may become fastened upon us.

I wish to congratulate Dr. Meader on the excellence of his work, because these are very definite cases of transmission of the disease in this country, and I do not know that that has ever occurred before. This paper is a valuable contribution not only to medicine and the history of relapsing fever, but it is an important contribution to preventive medicine.

Dr. Meader (closing): There is not much to add to what I have already said. The characteristic symptoms spoken of should be borne in mind: the marked prostration; the abrupt cessation of the attack; the presence of an enlarged, tender liver and spleen, and positive blood findings. The blood counts are interesting, but are not of diagnostic importance. The unusual urinary findings are interesting.

I have read recently, in the Wiener Medizinische Wochenschrift, April 15, 1915, a report of 170 cases of relapsing fever. All of the 170 cases studied showed the same urinary pictures as the cases I have reported. There was the same sudden appearance of a large amount of albumin with a large number of fine hyalin and granular casts, and the same rapid disappearance. When the temperature goes down, the urine clears immediately.

I have reported these cases because it is possible that the gypsies, if we can trace it to them, have left other foci of infection. Another summer we may have new cases appearing in the state, and it is well for us to be on the lookout for them. An endemic focus or foci may have been established. Frequently the disease is transmitted through many generations of ticks. The spirochetes are found in the eggs of the ticks, when the young ticks develop from the eggs the spirochetes appear in them, and unlimited propagation is thus perfectly possible.

THE USE AND ABUSE OF DRUGS.*

W. T. LITTLE, M.D., CANON CITY.

The treatment of a disease is dependent upon man's conception of its cause. When it was believed to be due to evil spirits, or the wrath of an unappeased God, tom-toms were beaten, incense burned, sacrifices and prayers offered.

When men substituted speculative philosophy for religious superstition they were scarcely nearer the truth, and treatment, although more material, was almost as absurd. Vipers' flesh, live worms, foxes' lungs, moss from the skull of a victim of violent death, crabs' claws, saliva from a fasting man, human placenta, urine and many other curious and filthy compounds were poured down the gullets of the sick with a firm conviction of their therapeutic efficacy.

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*Read at the Annual Meeting of the Colorado State Medical Society, October 5th, 6th, and 7th, 1915.

When speculation gave way to investigation and the true nature of disease was revealed, rational treatment followed.

"Tell me what the disease is", says the therapeutist to the pathologist, "and I will find a remedy".

Up to the last quarter of the nineteenth century, during which time the epoch-making discoveries of pathology and bacteriology completely revised our conception of disease, therapeutics rested upon no firmer foundation than clinical impressions, and pharmacology was little more than the art of preparing and compounding drugs. Yet mercury was given for syphilis centuries before Schaudinn and Hoffman discovered the treponema pallidum; and cinchona bark was used to cure malaria generations before Laveran was born. Opium, digitalis, ergot, iron and other drugs of the greatest value have been used for centuries and their effects doubtless well known, but how they acted was a mystery until the physiologist administered these drugs to the vivisected animal and studied their action upon each organ and its function.

The Hahnemannian method of proving drugs, inaccurate though it was and long since abandoned, was an attempt to study their physiologic action; and while the method died the idea lived. All drugs have a selective action upon organs or cell groups; to attempt to measure this selective action by clinical impressions alone is manifestly unscientific, but we see in daily use numerous drugs that have no better reason for their existence than that they are administered and the patient recovers. The so-called stimulating expectorants, for example, belong to this class. Probably few if any drugs have enjoyed greater popularity than these. A belief in their potency has been handed down from generation to generation, and we have all used them with an abiding faith; but when subjected to the acid test of laboratory experiment they fail to show any definite action on the glands of the bronchial mucous membrane or the bronchi.

Physiological action determined by carefully conducted animal experimentation should, therefore, be the only basis upon which to construct a therapeutic application of drugs.

Unfortunately not all reports on drugs issuing from pharmacologic laboratories can be accepted as gospel. So long as drugs are prepared, handled and sold as common merchandise, their consumption is going to be promoted by every possible means. The one way to stimulate their use through the medical profession is by making false claims as to their purity and potency, backed by pseudo-scientific laboratory tests. Doubtless honest work has been done and is being done in commercial laboratories, but as it is impossible for the average clinician to separate the chaff from the wheat' he would better consign unread to the waste basket the literature coming from such sources. It is very important then to use active drugs, and equally important to use reliable drugs. An active drug often becomes inert through age or carelessness in handling. Take digitalis, for example: the American leaf is decidedly inferior to the English or German; the leaf used must be the second year's growth; the leaves must be carefully treated and preserved in air-tight tins and not exposed to light until used. An inferior preparation may cost a patient his life. Ergot deteriorates rapidly with age. Tinctures prepared from crude drugs are notoriously uncertain in their strength of active principles. Pills long on the shelves are often as insoluble as buck-shot. How often do we follow our prescriptions to the apothecary's to see if our patients get what we want them to have? The surgeon will not risk his patient's life and his own reputation by using suture material and dressings he is not absolutely sure of, but the physician, with a firm belief in the healing power of nature, knows all's well that ends well!

The superstitious faith in drugs held by most of the laity probably explains the unfortunate habit according to which most of us prescribe before we diagnose; and equally meretricious is the practice of meddlesome interference. "When called to guide a patient through an illness", says Hare, "the physician should be constantly a watchman, and a therapeutist only when necessity arises. A good physician is one who, having pure drugs, knows when to use them, how to use them, and equally important, when not to use them''.

A common example of meddling is seen in the unnecessary giving of heart stimulants. I'm sure if the heart could speak it too would cry out, ''My God, my God! why persecutest thou me''?

The practice of giving cardiac stimulants for cerebral anemia as in syncope, for shock, and after hemorrhage, as is so often done, shows a faulty conception of the condition being treated. Nature stops a pulmonary or gastric hemorrhage by reducing the force of the heart and lowering blood pressure that clotting may take place in the bleeding vessel. By stimulating the heart we are opposing nature's effort and often we produce the very thing we want to prevent. In shock there is vasomotor paralysis with capillary dilatation; the blood pressure falls and the pulse becomes rapid and small. The heart weakness is apparent, not real, and when the intracardiac blood pressure is restored the heart is as good as ever. Measures to combat the vasomotor paralysis and not cardiac stimulants are indicated. To give nitroglycerine in shock is like carrying coals to Newcastle.

Digitalis is the best cardiac tonic known, and when given for the one thing it is good for—decompensation—is almost unfailing in its action provided one uses an active preparation. It is absorbed and eliminated slowly, its action is continuous and it should not be combined with other drugs.

The combination known as the Da Costa heart tablet, composed of digitalis, strophanthus, nitroglycerine and belladonna, is one of those pharmaceutical absurdities which continue to enjoy undeserved popularity. Digitalis raises blood pressure and its action is slow and continuous. Nitroglycerine has no action on the heart but lowers blood pressure and its action is like a puff of powder, lasting but a few minutes. Strophanthus is a good cardiac tonic but inferior to digitalis. Like the latter it should not be given in combination with other drugs. Inasmuch as belladonna depresses the vagi and stimulates the vasomotor centers I am at a loss to understand just what it is expected to do in this combination that is especially helpful.

Fortunately for us all, the weight of evidence seems to be overwhelmingly against strychnine having any effect on the heart except in toxic doses, otherwise I fear we should have done much damage. Just what we are going to do without this handy drug I am at a loss to know; it is so convenient in our hypodermic case and has so often given us and all concerned that satisfactory feeling that all that is known to medical science is being done.

Cactus grandiflorus, quite widely advertised by some pharmaceutical houses as a powerful and dependable heart stimulant, is another drug which, when tried on the dog, proves itself worthless.

The so-called intestinal antiseptics are a group of drugs which are valueless except to the druggist who sells them. One prominent manufacturer gives the formula of his combination thus: ''A scientifically blended and physiologically adjusted mixture of the pure sulphocarbolates of lime, soda and zinc, with bismuth salicylate and menthol to flavor. Indicated in all fermentative and septic conditions of the alimentary canal, dyspepsia, typhoid fever, diarrhea, and bowel troubles of all kinds; also during the course of all fevers''. Just what this mixture will do he does not say, so I will add that—it will do nothing.

Many investigations have been made by numerous men to determine the effect of bactericidal and antiseptic drugs upon the intestinal flora, and the conclusions are all the same, that in medicinal doses there is practically no effect. A dose of salts and a fluid diet will do infinitely more to reduce the number of bacteria in the intestine than all the scientifically blended and physiologically adjusted mixtures at present on the market.

Intestinal indigestion, like intestinal bacteria, is little influenced by drugs. Pancreatin, malt, taka-diastase and the other enzymes will convert starch into sugar in the test tube, but as usually administered the doses are too small to be of any material assistance, and furthermore they are largely destroyed in the stomach by gastric digestion before reaching the intestine. A correct adjustment of the diet is far more effective.

Most of the so-called tonics have more or less value when properly used, but like charity they cover a multitude of sins—usually the sins of omission—consisting of failures to make diagnoses. The patient with incipient tuberculosis, for instance, is given hypophosphites or beef iron and wine instead of rest and fresh air.

The shot-gun prescription is not yet extinct. True we have now the twenty gauge choke-bore kind in contrast to the famous antidote of Mattioli which consisted of two hundred and thirty ingredients, but the simpler one's recipes are, the better one is able to judge the effects and to modify the doses.

The pharmaceutical manufacturers have done much for the art of pharmacy by their improvement of the appearance and taste of drugs, but at the same time they have flooded us with a polypharmacy that amounts to a deluge.

Pharmacology is a branch of medical science second to none other in importance. It is essential to know disease, its cause and its natural history before we can successfully control it; but its prevention and cure is the ultimate purpose of all our efforts. By physical and chemical means we endeavor to restore to their normal function organs damaged by disease, and only when their functions are destroyed should we cut them away. Drugs are of the greatest value in modifying and restoring function, but they should be used with a precision that can come only from an exact knowledge of their action.

The pharmacological laboratories are gradually weeding out those drugs of uncertain value, as the expectorants, the hypophosphites, viburnum, strychnine, etc.; and hard as it may be to part with old friends, it is our duty to do so if we are to maintain the highest state of medical efficiency.

In conclusion let me summarize the several points I have attempted to bring out in this short paper.

1st. A knowledge of the physiologic action of a drug is essential to its correct use.

2nd. We should know that our drugs are both active and pure.

3rd. We should give drugs only when they are clearly indicated.

4th. In judging the worth of a remedy always maintain an attitude of scientific skepticism.

"Prove all things; hold fast that which is good".

DISCUSSION.

There was no discussion on the paper of Dr. Little, but at the invitation of the President, the author made the following supplementary remarks:

W. T. Little, Canon City: I have not attempted to cover the subject of drugs, but merely touched upon some of the greater discrepancies or absurdities in their use and abuse. The Council on Pharmacy and Chemistry of the American Medical Association has been doing a wonderful work in weeding out the useless drugs and giving us accurate data on the effects of new preparations. But in the last report of the Council there seems to be a tone of disappointment that more has not been accomplished from their work. I imagine that this is due to the fact that a good many readers of the Journal really do not give to the work of the Council the attention that it deserves. I have noticed in my years of practice that a great many physicians, who are excellent physicians in every other way, do not use drugs with a definite knowledge of their true physiological action or of their exact effect, and I think this is a subject of great importance.

IMMUNITY IN TUBERCULOSIS.*

GERALD B. WEBB, M.D., AND G. BURTON GILBERT, M.D., COLORADO SPRINGS.

The death rate from tuberculosis is at present declining, yet we must remember that Karl Pearson has shown there have been other periods of decline long before the present campaign against the disease originated.

Looking at the disease tuberculosis from the germ's standpoint, the bacillus cannot desire to kill any victim. Should this happen, a colony of tubercle bacilli is lost.

We cannot but acknowledge that by our present methods of prolonging the lives of the tuberculous we are playing the tubercle germ's game, and we are producing a very large number of tubercle bacillus "carriers". It is easily seen therefore that the chances of infection of new generations are becoming greater, especially as so many patients leaving sanatoria become most careless with their sputa.

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*Read at the annual meeting of the Colorado State Medical Society, October 5, 6, and 7, 1915.

Were it not that the general care of the health of the human race is improving rapidly, we should be pessimistic indeed of the future in the tuberculosis death rate.

We know today that probably all children become infected with the germ of tuberculosis. Exactly when this occurs, however, we do not know. We do not feel that complete reliance can be placed on the results of the skin tuberculin reactions, and we prefer to rely on the autopsy records such as Ghon has published.

From these we see how children must take their chances with the tubercle bacillus. It is nature's crude method of vaccinating the human race against the disease, for we have learned that such infection may serve to a degree as a protection.

The numbers and virulence of the tubercle bacilli causing the infection of children, however, cannot be controlled, and nature's crude methods cause alone a high mortality among children, if we omit reference to the heightened susceptibility to large doses of infection which may cause such a high mortality later in life.

It would seem, therefore, wise to attempt to improve on such crude methods or this chance infection of tuberculosis.

So far no method has been found. In general a vaccine must be a living virulent virus which will multiply in the tissues at the seat of inoculation.

Experimenting for some years with minimum lethal doses of tubercle bacilli we find that virulent cultures probably vary somewhat, but in general ten bacilli inoculated subcutaneously will produce tuberculous disease in guinea pigs.

We have not yet found any safe method of injecting a single minimum lethal dose to produce protection in guinea pigs without producing a spreading infection in these animals.

We have injected these doses with "immune" blood platelets; with "immune" lymphocytes; and with "immune" sera; yet infection has resulted in many cases.

We have excised early the local lesions, we have caused local lesions in strips of skin anchored only at one end to the guinea pig, but too frequently we have found that the disease has spread beyond to neighboring lymph nodes.

We have succeeded in producing safely some immunity to tuberculosis when we have inoculated very small numbers of tubercle bacilli of moderate virulence, and gradually increased these numbers. With the most virulent cultures, however, even this cannot be achieved, as infection will take place. We are at present attempting to isolate a culture of tubercle bacilli which will be virulent enough when inoculated in these small progressive numbers to produce immunity in guinea pigs without producing infection.

As Baldwin states in an excellent article on "Immunity in Tuberculosis," our method is not practical. We grant this to be true. We feel, however, that with failure in all other methods of producing immunity, the impracticability of our method may in time be overcome. It is certainly a method by which both numbers and virulence of the tubercle bacilli can be controlled, and we hope to report later further progress with our experiments.

As the immortal Pasteur stated, "We must repeat our experiments: the chief thing is to persevere."

TRIUMPHS OF PREVENTIVE MEDICINE.

J. W. AMESSE, M.D., DENVER.

(Continued from Page 335.

Hookworm Disease.

For millions of people in this country, the recognition of hookworm disease by Dr. Charles W. Stiles in 1902 meant health or life. Though this infection was known to the Egyptians 3,500 years ago, and is still known in the old world as Egyptian chlorosis, the relation to a certain parasite, Ankylostoma duodenale, was not demonstrated until the latter part of the nineteenth century. From that time up to 1902 this was supposed to be the only hookworm inhabiting the intestine of man, but in May of the latter year Stiles discovered a distinct species to which he gave the name Necator (murderer) americana. After a very extensive field investigation he proved beyond question that hookworm disease has been epidemic in the South, particularly in the sandy districts, for a century; that in its varied manifestations it has been mistaken for malaria, for simple or pernicious anemia and for the systemic disturbances following the disgusting habit of dirt-eating. As a matter of fact this perversion of the appetite is an effect and not a cause of the disease.

Coincident with the discovery of the parasite, its mode of entrance was determined by Loos. This is quite as extraordinary as the transmission of infection in yellow fever. Instead of being acquired through the food or water supply, as are other intestinal diseases, the hookworm larva bores through the skin, usually of the feet, in persons working or walking in infected soil. The larvæ reach the blood stream in a few hours and are carried to the right side of the heart. From here they are swept into the lungs where the capillaries are smaller than the worms and these break through into the air vesicles. They are then coughed up and either expectorated or swallowed. If ingested by the stomach they sustain no damage from the gastric juice, but pass on into the bowel where conditions are best suited for their growth and multiplication. The hemorrhages sustained from the continued biting of these parasites, added to the infection of the wounds made by their powerful hooks, combine to produce the profound anemia and utter lack of initiative characterizing these poor patients.

Hookworm disease is found especially among children and others who at times go barefooted; among agricultural laborers, coffee-pickers, gardeners, mill-workers and in those living or working close to the soil. Thus we find brick-makers, tunnel-workers and miners heavily infected. The reports of the Hookworm Commission show that probably ninety per cent of the counties in our southern states, from Maryland to Florida and west to Texas, are infected with this parasite, justifying Stiles in his statement: "Malaria is admittedly one of the most important diseases from an economic standpoint. In general uncinariasis is in our southern states fully as important and in some respects even more so. It is reducing the labor capacity, hence the productiveness of the family, to as low as thirty or forty per cent. Nor are the losses in wages and in the laboring capacity of the family, hence of the farm and finally of the county and state, the only economic considerations involved. Cases are not unknown where families have sold, moved or destroyed their homes because of the existence of this disease and because of their belief that it was due to the locality in which they lived. Taking what I believe to be a conservative view of the subject, I find it difficult to escape the conclusion that in hookworm disease we have a pathologic basis for the inferior mental, physical and financial condition of the poorer classes among the white population of the rural districts in the South".

This was written ten years ago. Since that time, this menace has been brought under control through the active campaigns of the various state governments and the Rockefeller Hookworm Commission, which has just been dissolved to engage in the broader field of international sanitary work. Several years ago it was found that thymol acted as a specific in ridding the patient of infection. Traveling dispensaries throughout the South, organized and financed by the above agencies, have in the past five years reached every infected district, made examinations to the number of hundreds of thousands, treated in the neighborhood of a million persons and conducted an educational campaign which promises to free these regions from this distressing evil.

The International Sanitary Commission has now sent experts to various countries in Central and South America and to China, where with the consent of the respective governments, these same measures will be inaugurated. The federal government is now making investigations among the miners of this country, many of whom have been found infected, and restrictive efforts on the above lines will be forthcoming.

Typhus Fever.

The European war has brought into prominence another disease which has always been a camp-follower, and responsible for more disability, in many instances, than gunshot wounds. Typhus fever carries the additional menace of being so easily communicable that physicians and nurses fall ready victims. Recent dispatches from the war zone in Austria and Poland recount the terrors of this disease, and note the deaths of several Red Cross surgeons from America. It will come as a surprise, therefore, to many to hear that the cause of spotted fever is no longer a mystery. In 1909, Dr. Howard T. Ricketts, of Rush Medical College, Chicago, determined to investigate the etiology of this affection at one of its chief endemic centers, the City of Mexico. At this time, there were scores of deaths reported from typhus daily in the federal prison. Ricketts had succeeded the year previous in demonstrating the mode of transmission of Rocky Mountain fever (through the woodtick) from domestic animals to man. He was exceptionally well equipped for his new venture and was voted a substantial sum to carry on this work by the American Medical Association. In casting about for an explanation of the very infectious character of typhus, he noted the vermin swarming over the clothing and bodies of sick and well alike. Taking some of these parasites which had engorged themselves on fever cases, he allowed them later to bite monkeys and succeeded in transmitting the disease to these animals. Other monkeys were infected from the first ones, outside of the prison and and away from any possible source of contagion, by first feeding the vermin on the sick and afterward transferring to the bodies of the well. So on through many series.

Experiments were then made to test every other avenue of infection, without success. In the very hour of his triumph, and while preparing to return home, Ricketts was seized with the disease and died, a martyr to the great cause we are here considering. In the prison yard of the City, the Mexican government, in appreciation of his remarkable achievement, erected a magnificent marble column. The prison itself has been permanently freed from fever through the simple expedient of fumigating the building and boiling the clothing of all prisoners on admission. In war time, when sanitary measures such as these cannot always be carried out, we shall still find typhus raging as it is in southeastern Europe, but wherever hygienic requirements can be met, it will be numbered with the diseases whose history is closed.

The Control of Smallpox.

So much hostile criticism of vaccination laws has been expressed in this country and England, and so much of this sentiment is due either to ignorance or misconception of facts, that a free discussion of the question may not be out of place at this time.

When the opposition to this procedure is offered on religious grounds, I have no reply, but when based on the plea of personal liberty, the following decision of the Supreme Court of the United States will be of interest. This decision upheld the vaccination law of Massachusetts at every point, and with reference to the rights which certain people believe are infringed by these measures, it concludes:

"The liberty secured by the Constitution of the United States does not impart an absolute right in each person to be, at all times and in all circumstances, absolutely free from restraint. Real liberty for all could not exist under the operation of a principle which recognizes the right to use his own, whether in respect to his person or his property, regardless of the injury that may be done to others".

The discovery of vaccination by Jenner in 1796 was preceded by a rather general knowledge throughout the rural population of England that the so-called cow-pox successfully protected against smallpox. It is to him, however, that we owe all the credit for putting the popular belief on a sound scientific basis through experimental processes which have never been excelled in their clearness and conclusiveness. As he himself wrote, "I placed it on a rock where I knew it would be immovable, before I invited the public to inspect it".

The first person vaccinated in America was the five-year-old son of Dr. Benjamin Waterhouse, professor of the Theory and Practice of Physic at the medical school of Harvard. Thomas Jefferson became an enthusiastic convert, and while President helped materially to spread the new doctrine throughout the United States. In a personal note of appreciation to Jenner, Mr. Jefferson said: "Future nations will know by history only that the loathsome smallpox has existed and by you has been extirpated".

As Dr. Rosenau remarks: "This prophecy has not yet been fulfilled, though eminently possible".

The horrors of epidemic smallpox, as seen in the pre-Jennerian period, have been spared us so long that we have grown indifferent to its ravages and contemptuous toward the sole measure which has obstructed its progress. Macaulay has given a most graphic picture of the inroads of this disease in ancient times:

"That disease over which science has achieved a succession of glorious and beneficial victories was the most terrible of all the ministers of death. The havoc of the black plague had been far more rapid but this had visited our shores but twice within living memory, while the smallpox was always present, filling the churchyard with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those lives it had spared the hideous traces of its power, turning the babe into a changeling at which its own mother shuddered, and making the eyes and the cheeks of the betrothed maiden objects of terror to her lover".

Even in the eighteenth century, ten per cent of the total death rate in England was due to smallpox, and one person in every five was horribly scarred. In Prussia there were 25,000 deaths annually, in France 30,000, while in Russia 10,000,000 persons died of this disease during this century of plague.

We believe, then, that the opinion of Professor Councilman regarding vaccination is entirely justified when he states: "It is impossible to overestimate the influence which it has exerted in furthering civilization and the physical and moral advance of the human race; without vaccination, and with the present intercommunication, smallpox would rage over the entire world".

From this resumé, I feel we are justified in the following conclusions:

1. That in vaccination we have the safest, simplest and most potent specific prophylactic in the field of preventive medicine.
2. That, of itself, it is essentially harmless; the infections sometimes complicating the operation being due to faulty technique on the part of the physician, or unclean handling on the part of the patient.

Closing.

Space forbids any but the briefest mention of the following conquests of disease:

Diphtheria: By the elaboration of an antitoxin for diphtheria, Behring reduced the mortality from this affection, once so greatly dreaded, from fifty per cent to about six per cent—in other words it saves 44 children in every hundred cases.

Whooping Cough: A vaccine has recently been prepared, following the discovery by Bordet of the causative organism, which in most cases shortens the course of this dangerous epidemic disorder from three months to about three weeks. As a preventive in children not yet stricken it promises to be quite as potent as the vaccine against typhoid.

Infantile Paralysis: The germ of this justly feared disease has been discovered within the year by Dr. Simon Flexner of the Rockefeller Institute. It is entirely probable that a curative treatment or a preventive will shortly be forthcoming from this group of scientists, who are doing so much to banish the transmissible disorders.

Amebic Dysentery: One of the scourges of tropical climes. The vegetable kingdom has again given us a specific in emetin comparable to quinine in malaria. Its use in this disease transforms men from wasted, pain-racked invalids to robust individuals and it promises to remove one of the few remaining hindrances to safe living in hot countries.

Tetanus, or lockjaw, has been rendered preventable by an anti-toxin; beri-beri has been proven to be, not a distinct disease entity, but a disorder of nutrition readily curable by a proper ration; scurvy has practically ceased to exist; rabies may be prevented by the Pasteur treatment; Malta fever, transmitted only through infected goat's milk, has been wiped out; infantile mortality has been reduced one-half in cities providing proper sanitary supervision of their citizens, and will be diminished twenty per cent further when politics is eliminated and the health officer chosen for his fitness rather than his influence; infection in lying-in hospitals has disappeared.

Surgical Advances.

The benefits accruing to humanity from the discoveries of Pasteur and the development of asepsis are nowhere better seen than in surgery. Whereas a few years ago blood poisoning with all its dreadful consequences was a common sequel to the slightest operation, and hospital gangrene and erysipelas were the nightmares of our life, today the merest tyro can invade with impunity practically every region of the body, so far as risk of infection is concerned.

Antiseptic surgery is saving over ninety per cent of the wounded on European battlefields and mitigating the horrors of this indefensible conflict so materially that hundreds of thousands of useful lives will be spared for nobler purposes. In short, these agencies, combined with the advances in sociological administration, have lengthened the average human life in the past century from 23 years to about 45. These figures are taken from the actuarial tables of the leading insurance companies of England.

The average length of life in India today is 25 years; in Massachusetts 45; in Sweden 50. So our domination of disease will increase until good health becomes contagious and "the days of our years" reach the span Nature has ordained.

452 Metropolitan Building.

News Notes

The ambulance of the American Hospital of Paris, a war hospital containing five hundred and fifty beds, makes frequent appointments to the post of surgical assistant. Dr. Charles A. Powers has recently received interesting particulars of the work being done at this institution, and will be glad to give information regarding these appointments.

The October issue of the Annals of Ophthalmology consists in large part of papers read last July at the Ophthalmological Congress held in Denver under the auspices of the Colorado Ophthalmological Society. The remainder of these papers and of the discussion which accompanied them is to appear in the January issue of the Annals.

The faculty of the medical department of the University of Colorado is making serious efforts thoroughly to utilize for teaching purposes the clinical material afforded by the Denver City and County Hospital. At a recent open faculty meeting the steps to be taken to ensure regular attendance and good teaching work on the part of visiting members of the hospital staff were freely discussed.

Work has been begun for the laying down of new composition floors in the wards of the County Hospital in Denver.

At a recent meeting of the Southern Society of Physicians and Surgeons in Dallas, Texas, Dr. W. W. Grant read a paper entitled "Railroad Surgery."

Dr. W. W. Reed and Carbon Gillaspie, of Boulder, have returned from a visit to Boston and other eastern points.

Some evanescent excitement was caused in Denver recently by the formation of a new organization called the "Denver City and County Physicians' and Surgeons' Association", which newspaper rumor declared was intended to compete with the Medical Society of the City and County of Denver.

It is announced that the Denver city dispensary will shortly be closed owing to lack of an appropriation for its maintenance.

Dr. J. Gelien addressed the Denver Mothers' Congress on the need of physical examination of school children, for school physicians, and for school nurses. Dr. Gelien also spoke in favor of open air schools in the city, on account of the many tuberculosis children who could not attend the public schools.

Dr. Ella M. Fowle died at her home in Denver on November 25th. Dr. Fowle was born in Massachusetts in 1854, and practiced in Colorado some years ago, but had retired from practice on account of ill health.

The death of Dr. E. L. Trudeau, pioneer in the sanatorium and open-air treatment of tuberculosis, is of international significance. Dr. Trudeau's work for others in the Adirondack mountains was the result of the attempt first made in 1873, at the age of 26 years, to regain his own health. Among the most famous of his patients was Robert Louis Stevenson.

Dr. E. J. Raymond has removed from Windsor to Wellington.

Dr. Sherman G. Bonney lately surprised Denver medical and other society circles by his marriage in St. Louis to Mrs. Jessie E. Ray. Both parties to the match had been divorced from their former mates, Mrs. Ray in 1911 and Dr. Bonney last summer. The wedding was hastened by the fact that Dr. Bonney's health was in an unsatisfactory condition and demanded a prolonged rest. This he will take in Boston and Florida.

Dr. J. B. Clymer, who recently removed from Loveland to Meade, suffered a broken arm and bad cuts and bruises about the head and face, when an automobile in which he was riding turned turtle.

The suit for $60,000 against Dr. and Mrs. Charles E. Walker, of Denver, brought by a professional musician on account of alleged improper performance of an eye operation, was decided by the jury in favor of the defendants.

A suit brought against Dr. Edgar F. Conant of Denver for damages for the loss of an eye which had become entirely blind some time after an operation subsequently done by another surgeon for removal of an intraocular metallic foreign body, was dropped by the plaintiff.

A son was born to Dr. H. E. Abraham of Trinidad on the 29th of last month.

The Evans Memorial for Clinical Research of Boston wishes to get into communication with as many physicians as possible who have used bacterial vaccines in the treatment of typhoid fever, in order to collect statistics as to the efficacy of the method. Blank forms will be furnished on request by Dr. W. H. Watters, 80 East Concord street, Boston.

Dr. J. N. Hall gave an address before the Kansas City Academy of Medicine on Friday evening, November 12th, on the subject of subphrenic abscess. He reports a pleasant and very successful meeting.

At the request of the American First Aid Conference, President Wilson has appointed a National Board on First Aid Standardization, with a view to recommending standards for first-aid methods, packages, equipments, and instruction. The various state medical societies have been asked to appoint committees to act with the National Board.

A bulletin (No. 71) of the National Conference of Charities and Correction contains twenty pages of abstracts of the social legislation passed by the various states in 1915.

A news circular recently issued by the United States Public Health Service announces that experts employed by the service have discovered the cause and cure of pellagra. The cause is stated to be a diet containing insufficient proteids. The experiments were made on volunteer convicts, who had been promised pardon as a reward.

The next examination for appointments in the medical corps of the navy will be held on or about February 23rd, 1916, at various central points over the United States. Printed matter containing full information as to the examination has been deposited with the library of the Medical Society of the City and County of Denver.

Tuesday, Wednesday, and Thursday, September 5, 6, and 7, 1916, are the days selected for the forty-sixth annual meeting of the Colorado State Medical Society, at Glenwood Springs.

Dr. Mary Hawes of Denver died very suddenly from pulmonary hemorrhage on December 8th. Dr. Hawes was a Cincinnati graduate and an interne in the Cincinnati General Hospital, and came to Denver on account of the development of pulmonary tuberculosis some fifteen years ago For one who was always frail, she maintained for years a remarkable activity in various forms of medical and teaching work in Denver. She was professor of histology and of embryology at the Denver and Gross Medical College, and was always popular with her students, in whose studies she took the keenest interest. Some five years ago the condition of her health compelled her to abandon practice, but she kept up a close interest in the medical people and medical doings of Denver.

Dr. H. R. Stilwill of Denver has been appointed ophthalmologist to the Union Pacific Railroad.

Colorado will be represented on the program of the convention of the Western Surgical Association in Des Moines, Ia., December 17 and 18, by Dr. W. W. Grant, Dr. C. E. Tennant and Dr. C. F. Hegner, of Denver.

Dr. W. W. Grant has been confined to his home with an attack of la grippe for two weeks.

Dr. and Mrs. W. P. Hodnett are the proud parents of a baby girl, born November 28th, 1915. The Hodnetts have moved to Telluride, where Dr. Hodnett will take up his work in the Telluride Hospital.

Dr. Wm. Edmondson has left Denver permanently and has gone to Chicago.

El Paso County Notes.

Dr. H. M. Ogilbee spent the month of November in a trip to the Puget Sound country and the Pacific Coast.

Dr. and Mrs. McConnell spent several weeks visiting the fairs and California.

Dr. J. H. Ferguson has returned from a visit with relatives in Missouri.

Dr. P. O. Hanford and family will spend the Christmas holidays with relatives in Springfield, Mo.

Dr. and Mrs. James T. Muir have returned from spending the summer on their ranch in Wyoming.

Dr. and Mrs. Shivers are the parents of a son, born November 19th.

Dr. A. I. McCumber, formerly house physician at St. Francis' hospital, died recently at Lewiston, Ill., from injuries received in a street car accident.

Medical Societies

BOULDER COUNTY.

The regular monthly meeting of the **Boulder County Medical Society** was held in the Boulder Commercial Association rooms of the Boulderado Hotel, December 2nd, 1915; the President, Dr. C. E. Giffin, in the chair.

The paper of the evening was by Dr. Carbon Gillaspie. It was a report of his examination of the anatomical departments of the Universities of Missouri, Iowa, Chicago, Harvard and Pennsylvania. He noted a diversity in methods.

The work in the University of Iowa seemed to be the most efficient. The equipment and methods of instruction represent a marked advance over those of a few years ago.

In closing, he spoke of the work in bone surgery, grafting and plating, that he had seen while present at the recent Congress of Surgeons in Boston.

Members present: Drs. C. E. Giffin, L. M. Giffin, E. B. Trovillion, W. L. Snair, E. H. Robertson, Kate Lindsay and E. B. Queal.

C. L. LA RUE, Secretary.

CITY AND COUNTY OF DENVER.

A meeting of the Medical Society of the City and County of Denver was held November 2, 1915, Dr. W. W. Grant presiding.

Resolutions on the death of Dr. Louis Schultz were read.

Dr. W. A. Jayne and Dr. Henry Sewall were appointed a committee to draft resolutions on the death of Dr. E. C. Rivers.

Dr. H. B. Frosh was elected to membership.

In accordance with the order from the Committee of the State Medical Society, requesting each component society to elect a reporter, Dr. C. F. Hegner was elected as reporter for the Denver Medical Society.

The scientific program consisted of papers on Etiology and Diagnosis of Endometritis, by C. B. Ingraham, M.D.; Some Notes on the Treatment of Endometritis, by Cuthbert Powell, M.D. These papers were well received and were discussed by Drs. C. S. Elder, Henry Sewall and Wm. N. Beggs.

C. F. HEGNER,
Reporter.

A meeting of the Medical Society of the City and County of Denver was held November 16, 1915, Dr. W. W. Grant presiding.

Dr. H. G. Garwood reported a case of Hodgkins' disease and presented material removed at autopsy.

Drs. C. E. Tennant and C. F. Hegner reported an interesting case of recurrent malignancy of the left breast which was complicated by a chronic duodenal ulcer. The ulcer caused pyloric stenosis and extensive peripyloric adhesions simulating cancer. Careful study of the ulcerated area failed to demonstrate malignancy. Photo micrographs of a few of the sections were shown.

Dr. Mary Tower Bigelow, Dr. A. J. O. Löf, and Dr. Wilmer Adams were elected to membership.

Dr. W. A. Jayne, Dr. T. E. Carmody, and Dr. H. R. Stilwill were appointed a committee on revision of the by-laws of the Denver Medical Society.

The scientific program for the meeting consisted of papers on Differential Diagnosis of Ulcers of Stomach, Duodenum and Gall Bladder, F. W. Kenney, M.D.; Medical Treatment, J. R. Arneill, Surgical Treatment, A. H. Williams, M.D.

The papers were interesting and were followed by an animated discussion by Drs. H. B. Whitney, J. N. Hall, C. D. Spivak, C. E. Tennant, C. F. Hegner, Wm. N. Beggs, P. Hillkowitz, T. R. Love, G. M. Anderson, F. C. Buchtel, W. W. Grant and J. E. Kinney.

It seems that notwithstanding the excellence of the papers and the very general discussion, the question as to the medical or surgical nature of gastric and duodenal ulcer is still in doubt.

C. F. HEGNER,
Reporter.

A regular meeting of the Medical Society of the City and County of Denver was held on December 7, 1915, A symposium on fractures constituted the program. The papers, "Non-Union and the Bone Graft," H. R. McGraw, M.D.; "Conservatism in Operative Methods," M. E. Preston, M.D., were interesting and were quite generally discussed.

Dr. Frost Buchtel reported an interesting case of fracture of the neck of the femur with excellent functional and anatomical result following the insertion of a section of the fibula through the upper end of the shaft and neck into the head of the fractured femur.

Dr. John Inglis presented an unusually interesting case of acromegaly complicated by a large mediastinal tumor probably malignant in character.

C. F. HEGNER,
Reporter.

EL PASO COUNTY.

The regular monthly meeting of the **El Paso County Medical Society** was held on the evening of November 10th, 1915, with vice-president, Dr. L. H. McKinnie in the chair and 23 members present.

Drs. Hanford, Gilbert and McClanahan were appointed a committee to draft resolutions on account of the death of Dr. Alexander Perry. A motion to make an assessment of two dollars on each member for support of the library was passed.

Our librarian, Dr. Boyd, was instructed to make the necessary arrangements to procure some books from Denver for the library. The application for membership in the society of Dr. B. A. Filmer was read and laid over.

The following resolution was introduced by Dr. Gilbert and passed:

Whereas, An important drug, **Salvarsan**, necessary for the cure of disease and likewise the prevention thereof, is no longer available to the medical profession of this country owing to the European war, and

Whereas, This drug has been produced in this country, but cannot be supplied to physicians because its manufacture is protected by patents; therefore, be it

Resolved by **the El Paso County Medical Society** that the Secretary of the Interior or the Commissioner of Patents be respectfully urged to call upon the patentees to supply this drug or permit the same to be supplied by the Dermatological Research Department of the Philadelphia Polyclinic, or to take such other means as his judgment may dictate to relieve the existing condition.

Dr. Z. H. McClanahan reported the case of a young man who suffered complete severing of the tendo Achillis. The tendon was sutured and at the end of nine weeks recovery is complete.

Dr. J. H. Brown read the paper of the evening: "A Consideration of the Clinical Physiology of Hypertension in Two Case Histories to be Reported."

Dr. O. R. Gillett reported upon the condition of the public health.

The society adjourned to the dining room, where lunch was served.

GEORGE B. GILMORE, Secretary.

LAS ANIMAS COUNTY.

A deferred meeting of the **Las Animas County Medical Society** was held November 12, 1915, in the society's room in the Elks Club Rooms. Members present, Drs. Freudenthal, Richie, J. G. Espey, Thompson and Ogle.

Dr. Richie read a paper entitled "Nasal affections in relation to disease of the middle ear." An interesting discussion followed.

The committee on necrology introduced resolutions on the death of Dr. Perry Jaffa which were ordered spread upon the minutes and a copy sent to the mother of Dr. Jaffa.

Motion being made it was unanimously voted that the president of the society be empowered to appoint essayists for successive meetings of the society. Dr. J. G. Espey was appointed for December and Dr. Ogle for January.

Resolutions adopted by the **Las Animas County** Medical Society, November 12th, 1915: Whereas, an all-wise Providence has removed from our midst Dr. Perry Jaffa, we, the members of the **Las Animas County Medical Society**, deplore the loss of one of our most worthy and active members.

His sudden death was a loss to his family, the community and our society. Be it

RESOLVED, That we extend our heartfelt sympathy to his mother and family in their bereavement, and be it further,

Resolved, That these resolutions be spread on the society minutes and a copy mailed to the mother of our deceased but not forgotten friend and brother.

C. W. PRESNALL,
Secretary.

NORTHEAST COLORADO.

The **Northeast Colorado Medical Society** met in regular session December 1st, Dr. J. H. Daniels presiding. The following program was presented: Anemia, by Dr. Fox; discussion by Dr. Greig.

Action and Use of Digitalis, by Dr. Barrett; discussion by Dr. Bush.

Dr. J. E. Naugle was elected to membership. Dr. J. C. Chipman brought up the subject of a new hospital for Sterling and the matter was discussed. It is probable that some definite action will be taken in the near future.

It was voted to hold a banquet at the next regular meeting in January, and Drs. Babcock, Bush and Barney were appointed by the chair to arrange the program. There was some discussion as to the advisability of making this a public meeting and having an address made along the line of preventive medicine.

MYRON L. BABCOCK, Reporter.

PUEBLO COUNTY.

President Taylor called the **Pueblo County Medical Society** to order in regular session at the Society Hall, November 2, 1915.

Dr. F. J. Peirce presented a paper on "Ligation of the Superior Thyroid Arteries in Goitre," with a report of a clinical case of exophthalmic goitre so treated, preparatory to resection, also a report of a clinical case of goitre in a child of fourteen months. This goitre was congenital and had grown to an enormous size. Dr. Heller presented the pathological specimen.

Dr. H. A. LaMoure of the State Hospital presented a paper on pellagra, with a report of a clinical case that had been treated with autogenous serum. The discussion of these subjects was very free.

J. H. WOODBRIDGE,
Secretary.

The **Pueblo County Medical Society** was called to order in regular session by the secretary, November 16, 1915. Dr. A. B. Lockridge was elected president pro tempore.

Dr. Crum Epler presented a paper to the society on

"Some Recent Conclusions from Skiagraphy."

The doctor made a strong plea for complete and thorough examination of the entire alimentary canal before operation within the abdomen, unless the contemplated operation was plainly an emergency. He maintained that the most organized Lane's bands were probably congenital, giving no trouble during the adolescent period; but, after maturity, from irritation due largely to habit and changes in the physical anatomy of the end gut, became irritated and should be properly classed in the scar tissue category. Scar tissue contracts as it ages and the obstructing trouble begins. As this process continues faulty metabolism adds to the damage done. The cause once established becomes augmented by the effect this cause produces. All bands of whatever nature or variety found attached to the intestine within the peritoneal cavity should be removed. The man who does not remove these adventitious tissues while operating within the abdomen is not sure of his position. A long chain of faulty metabolic processes due to a partially obstructed intestine is responsible for quite a train of gastric and other symptoms, even causing pernicious anemia. The busy physician even after being confronted with this picture would frequently fail to use every means at hand, and instead of making a diagnosis pass it off as a case of neurasthenia. Dr. Epler also claimed that "vicious circle" as a diagnosis for trouble following gastro-enterostomies was a myth; that gastro-jejunal ulcer was responsible for the nausea and vomiting; that food would not pass back into the stomach in cases where the new mouth was patent; that if it did, no change in the food would take place in the duodenum that would cause nausea, much less vomiting; that the non-absorbable suture was largely responsible for gastro-jejunal ulcer; that the long continuous through and through suture was a causative factor in that it would slip and gnaw by virtue of the motion of the muscularis of the stomach, and would constrict at some point setting up necrosis and the resulting ulcer; that one of the great essentials in doing this work is that the one operating should be thoroughly conversant with the particular part of the anatomy on which he is operating.

There was much discussion, both adverse and favorable.

A communication from one of the members of the society was read in regard to the ethics of inserting an advertisement card in newspapers. The society resolved that while such practice was permissible it did not care to sanction it.

J. H. WOODBRIDGE, Secretary.

WELD COUNTY.

The regular meeting of the Weld County Medical Society was held in the Greeley City Hall Monday evening, November 22nd, with a large attendance of members.

The meeting was called to order by President Knowles, who after the transaction of regular business regaled the society with a well prepared address on the past achievements and present needs of our society. He emphasized the importance of regular attendance, and the stimulus obtained by individual preparation of the subject to be taken up. He congratulated the members on the number and character of the scientific papers that had been presented during the past year, and closed by promising some rare scientific and other entertainment in the near future.

The address was received with applause, each member seemingly taking it for granted that the praise was especially directed towards him.

Drs. Ringle and Lehan next presented a series of clinical reports covering the history, operation, after care and result in a number of cataract cases. Dr. Ringle received special commendation for one case, in which a double cataract operation was performed at several months' interval, with results gratifying alike to physician and patient.

Dr. Pogue in reporting for the sick committee was pleased to state that Dr. W. H. Wood, who had been seriously ill in the Greeley Hospital, was convalescent and able to resume practice. Dr. Weaver also, he stated, was out of danger, after a severe attack of the popular ailment, "grippe."

Dr. Spaulding presented some interesting data gathered from several months' attendance at the Baltimore and New York Hospitals, after which the society adjourned.

CHARLES B. DYDE,
Reporter.

COLORADO OPHTHALMOLOGICAL SOCIETY.

A regular meeting of the society was held November 20, 1915, at the office of Dr. W. C. Bane, who presided.

Patients were presented showing the following conditions:

Injury to eye by shot from gun.

Case of dacryocystitis, operated upon the right side by the West method, and upon the left side after the manner of Prince.

Another case of dacryocystitis in which the sac had been obliterated by Gifford's procedure.

Case of herpes zoster ophthalmicus.

Case of tuberculosis of the retinal vessels.

A baby, 4 months old, with angioma involving the inner portions of the upper and lower lids of the left eye.

Boy with uveitis of one eye, the exciting cause of which may have been trauma.

Case of hemorrhagic choroiditis.

Boy with vestiges of hyaloid vessels and a fundus resembling that of an albino.

A girl with apparent diffuse lens opacities, very marked by oblique illumination but not seen with the ophthalmoscope, patient having 20/20 vision with correction.

Case of blepharochalasis, associated with angioneurotic edema, in a girl of 19 years.

Those presenting the above cases were: Drs. W. H. Crisp, W. C. Bane, Melville Black, Edward Jackson, H. R. Stilwill, C. E. Walker and E. T. Boyd.

There were twenty members and two visitors present.

E. T. BOYD,
Secretary.

Book Reviews

Syphilis As a Modern Problem. By William Allen Pusey, M. D., Professor of Dermatology in the University of Illinois. Price, cloth, 50 cents; paper, 25 cents. Pp. 129. Chicago: American Medical Association, 1915.

This little book gives encyclopedic information about syphilis. The three chapters on the history of syphilis are the most complete statement of this subject in English. Next, the disease is considered from the standpoint of its effect on society—not as a disease which the physician is called to treat.

In the chapters on etiology, pathology, and prognosis of syphilis, subjects such as the prevalence of this disease; its comparative frequency in men and women; the question as to whether or not syphilis is on the increase; the relative frequency of tabes and paresis; the effect of syphilis on the length of life, and when a syphilitic may marry, are considered in sufficient detail to allow the reader to get a mental picture of the disease, which serves as a foundation for the last chapter—the prophylaxis of syphilis. The latter subject is discussed without sensationalism, and a strong argument is presented for the inauguration of an organized sanitary attack on the disease.

The book is really intended for the lay reader, but it can be read with equal profit by the physician.

O. L.

What to Eat and Why. By G. Carroll Smith, M. D., of Boston, Mass. Second edition, thoroughly revised. Octavo of 377 pages. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $2.50 net.

In few other phases of medicine do we find such a diversity of opinion as in the subject of diet, but in Dr. Smith's late work, we have the subject covered in a most thorough and scientific manner, and for those who wish to derive the greatest possible benefit for their patients from a careful application of the principles of right eating, this book will furnish a great deal of valuable, practical information.

The question of diet is taken up and classified according to various diseases, the greatest emphasis being placed upon those in which nutrition and metabolism are most effected—such as obesity, emaciation, diabetes mellitus, gout, rheumatism, arteriosclerosis, lung diseases, diseases of the digestive organs.

The author goes with considerable detail into the caloric value of various food stuffs, giving workable tables and also definite suggestions as to diet, kind and quantity, to apply to each of the various diseases considered.

His chapter on exercise, though brief, is very practical and helpful. His tables are accurate and easily studied. In a general way, his classification is the usual one of proteid, fat and carbohydrates with the addition of the gram weight equivalent to 100 calories.

He lays much stress on the necessity for careful differential diagnosis in all intra-abdominal conditions. In some instances, he gives brief history of a typical case in order to make his point more clear.

He advocates the use of alcohol perhaps a little more strongly than other authorities on the subject, and while he lays considerable stress on the individual needs in making out diet lists for the various diseases, there is some tendency (and a most common one today) to advise the use of foods, both as to kind, combination and quantity, without quite enough recognition of the general nerve force and digestive function of the individual. It is always easy to devise a theoretical ration to accomplish certain ends, but in too many cases the application of such a ration is bound to be beyond the ability of the digestive vigor of the individaul to handle.

Taken as a whole, the work is a most satisfactory one, and by reason of the concise and interesting style in which it is written and arranged, should prove of great value to the practitioner who wishes to avail himself of the scientific application of dietitics.

Diseases of the Skin and the Eruptive Fevers. By Jay Frank Schamberg, M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Third edition, revised. Octavo of 585 pages, 248 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $3.00 net.

A work on the eruptive fevers, coming as such a work should, from the hands of an acknowledged expert on diseases of the skin, must necessarily be of great value to those whose interest in dermatology is practically limited to the recognition of the acute exanthemata. Dr. Schamberg's enormous experience permits him to speak authoritatively on this subject, and his knowledge of skin diseases in general renders his descriptions much more accurate and lucid than could be given by one without this knowledge. Good descriptions of the eruptive features of mild smallpox, Rocky Mountain fever, typhus fever and the more unusual forms of typhoid are given; also the accepted methods of treatment and prophylaxis for all such conditions.

The chapters dealing with diseases of the skin have been brought thoroughly up to date and offer reliable and practical suggestions for dealing with cutaneous disorders.

A. J. M.

A Digest of the Case Law on the Statutory Regulation of the Practice of Medicine. Compiled by the Medico-legal Bureau of the American Medical Association. Bound in legal buckram with stamped leather labels, 504 pp. Price $6. Chicago, American Medical Association.

The preparation of a work of this kind, certainly not likely to be a financially profitable one, would scarcely be possible except on the basis of such an organization as the American Medical Association. Yet it is a work of extreme value and importance to the medical profession and especially to medical organizations. The volume is divided into two principal parts. Part I contains a digest of the case law on the statutory regulation of the practice of medicine, arranged in chapters as follows: 1. The constitutionality of medical practice acts, under the federal and state constitutions. 2. The practice of medicine defined. 3. Who are practicing medicine. 4. Conditions precedent and subsequent to the right to practice. 5. Procedure and proof under the medical practice acts. 6. The sanction of the law; extraordinary remedies. Part II contains abstracts of cases arranged chronologically by states. The book is highly to be commended to physicians generally, and it seems especially desirable that every city and county medical organization should possess a copy.

Practical Medicine Series for 1915; Volume Six, General Medicine. Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, A.M., M.D. The Year Book Publishers, Chicago. Price, $1.50.

Following much the same order as the regular text-books on medicine, the contents of this volume deal with Infectious Diseases, Diseases of the Mouth and Esophagus and Diseases of the Stomach, Intestine, Liver and Gall-Bladder and Pancreas.

Infectious diseases of the most common type such as typhoid, para-typhoid, typhus, malaria, cholera, plague, yellow fever, rabies, tetanus, and dysentery are covered methodically and aptly, with special reference to diagnosis and laboratory methods.

Among diseases of the stomach a full description of the Rehfuss tube and its applicability is well written and special reference is also given to X-ray examinations. Fully half the volume is devoted to gastric complications, containing information which it would require a great deal of time to elicit from the medical journals.

The value of Roentgenotherapy in intestinal conditions, the duodenal tube and its use, intestinal toxemia, constipation and the various parasitic conditions are dealt with in an interesting and instructive manner.

Very few pages are devoted to the liver, gall-bladder and pancreas, but functional tests and the influence of the ductless glands upon each other are discussed in brief.

As a whole the volume is concise, new and valuable to the wide-awake physician who wishes to keep up with the year's advances in general medicine. R. H.

Practical Medicine Series for 1915; Volume Seven; Obstetrics. Edited by Joseph B. De Lee, A.M., M.D., with the collaboration of Herbert M. Stowe, M.D. The Year Book Publishers, Chicago. Price, $1.35.

This small volume comprises four parts, namely, Pregnancy, Labor, The Puerperium and The New-Born, each section following the usual method of the Practical Medicine Series, and including the various important and latest observations and contributions during the past year of the best obstetricians the world over.

Serum studies in pregnancy, twilight sleep, pituitrin in obstetrics, extra-peritoneal Caesarean section, and abortion with special reference to its medico-legal aspects, are among the most interesting articles, although the whole subject of obstetrics is covered in a minor way, rendering the volume one of value to the obstetrician for quick reference.

Possibly the only criticism which might be offered is the very brief summary of many of the more important aspects of obstetrics, which here gives the reader only a smattering of the subject but certainly does stimulate further investigation. The editor's notes at the conclusion of each abstract are to the point, instructive, and decided, only too brief to be satisfying.

As a modern book full of the latest thought and work on the subject of obstetrics this volume is well worthy of attention and purchase by the general practitioner as well as the specialist. R. H.

The Clinics of John B. Murphy, M.D., at Mercy Hospital, Chicago. Volume IV., Number V. October, 1915). Octavo of 228 pages, 56 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published bi-monthly. Price per year: Paper, $8.00. Cloth, $12.00.

This issue is probably the best one yet of Dr. Murphy's. Two startling cases of inoperable sarcoma are successfully treated by Coley's serum, autosensitized vaccines are discussed, and the value of sodium cacodylate as compared with salvarsan is emphasized.

The two subjects dealt with at greatest length are ureteral calculus and recent and chronic pleurisy. In the late cases Murphy still recommends drainage of the abscess and injection of 2 per cent of formalin in glycerine, while in chronic sinuses with large cavities he does a decortication of the lung, or the multiple rib-resection operation of Estlander.

In his clinics on elbow fractures and dislocations, especially with arthroplasties, early painful passive motions are vigorously condemned.

The treatment of tuberculosis of the knee and of an old Pott's fracture are not new but most apt. R. G. P.

The Medical Clinics of Chicago. Volume 1, Number III (November, 1915. Octavo of 200 pages, 23 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Price per year: Paper, $8.00; cloth, $12.00.

This third number of the Clinics is better than the first two. Williamson's talks on typhoid, plumbism, and gout are above the average. The article on neuritis by Hamill is the most instructive of all the clinics and gives a good differential diagnosis between peripheral neuritis and progressive muscular atrophy. Tice demonstrates some gall-bladder cases. Abt's cases are always somewhat different from those of other teachers, and here his talks on hysteria, enuresis, and anorexia are very apt. Preble discusses the rheumatic triad and acute catarrhal jaundice. Hamburger brings out very vividly the "pyloric syndrome" as an instance of tertiary syphilis. Mix's subacute Landry's paralysis and brain tumor show a careful and thorough course of reasoning. Tivnen's case of brain tumor is most carefully considered from the ophthalmological viewpoint and is most thorough. R. G. P.

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